C.D. Howe Institute
Commentary

September 2000 ISSN 0824-8001

The Dynamics of Poverty in Canada

What We Know, What We Can Do

Ross Finnie

In this issue...

A ground-breaking study of the dynamics of poverty in Canada and some associated policy implications.

The Study in Brief...

Understanding poverty has suffered in the past from a lack of information about the dynamics of low income — how many people enter and leave low income each year, how long people stay poor, what circumstances accompany entry into and exit out of low income — the characteristics of the long-term poor. As a result, policy has suffered, most essentially because people for whom low income is a temporary setback need different support from those for whom poverty is a long-term condition.

This study, the first general analysis of its type, explores the dynamics of poverty in Canada over the 1992–96 period using the recently developed Longitudinal Administrative Database (LAD). Among the observations this database makes possible are the relationships between changes in family status and income: becoming a single parent and leaving home as a young adult are, for example, strongly associated with entry into low income, while becoming attached is strongly associated with leaving low income for both unattached individuals and single parents (especially women). Other interesting observations are the increasingly greater likelihood of remaining poor as time in poverty increases, and the greater success in staying out of low income as time since a previous low-income spell increases.

Among the most striking findings is that the population in low income consists of two quite different groups. For half of those in low income at any time during the period studied, this was a temporary experience. By contrast, the other half were in poverty on a long-term basis (more than half the time) and some 40 percent were in poverty throughout the entire period. This latter group, which represents 6 percent of the total population studied, presents special policy challenges, but if measures such as training and other forms of assistance in entering the labor market could be made to work, it also offers the greatest opportunity to reduce poverty rates on a permanent basis.

The findings also reveal that personal characteristics and past low-income experience could, furthermore, help policymakers identify the population at risk of chronic low-income status and thereby effectively target policy measures. To this end, a mixture of interventions — both "carrots" and "sticks" (but in a "kinder, gentler" form than found in recent US reforms) and a strong labor market — are needed to reduce poverty in Canada, thus serving both equity and efficiency goals to which individuals across the political spectrum might agree.

The Author of This Issue

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"To Kalla — as always."

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$10.00; ISBN 0-88806-475-6

Poverty remains one of the most important items on Canada's social policy agenda, representing a hugely important issue in purely economic terms (its effects on the nation's productivity, government spending, and so on) as well as on the human scale (the associated deprivation). The first step in dealing with the issue is to understand its nature, including its most basic statistical aspects. But while we know much about poverty rates and the characteristics of the poor at any given point in time, our understanding of the *dynamics* of the Canadian experience of low income — or "poverty" (the terms are used interchangeably in this paper) — remains very limited.[1]

This shortcoming is serious, as many of the most important aspects of poverty relate to its dynamic element. For example, to begin to understand fully the nature of the hardship associated with the poverty experience requires knowing whether it is typically a relatively brief or a longer-term occurrence; to disentangle the proximate causes of entry into or exit from poverty depends on observing those events; to place specific poverty spells in a broader context relies on being able to calculate the actual income changes that occur at entry and exit and the rate at which individuals move back into poverty after escaping; and so on. Looking at poverty in a static framework tells us nothing about these aspects.

The missing dynamic element is particularly problematic for policymaking. A widespread incidence of shorter poverty spells, for example, generally implies fundamentally different policy prescriptions than does a greater concentration of longer-term spells among a smaller number of individuals; the former presumably tilts policy choices toward relatively short-term income support programs to help individuals get over a hump that they would likely soon manage on their own in any event, while the latter typically shifts the emphasis toward more active measures focused on a core group of individuals who need help getting back on their feet, moving into the labor market, and finding a path toward greater economic independence. Similarly, any understanding of the characteristics and events associated with movements into and out of poverty could aid the development of specific policy measures aimed at reducing the former and speeding the latter. Many other examples could be easily furnished.

The research underlying this report was made possible by the Applied Research Branch (ARB) of Human Resources Development Canada, and this paper is derived from Finnie (2000), an ARB Research Paper. The Small Area and Administrative Data Division of Statistics Canada provided access to and support of the Longitudinal Administrative Database (LAD) on which the study is based. The author also gratefully acknowledges a Social Sciences and Humanities Research Council Research Grant, which was critical in earlier stages of research with the LAD data. Helpful feedback was received from Michael Hatfield and Allen Zeesman throughout the project. Extremely useful written comments on the complete text were provided by Sheldon Danziger, Martin Dooley, and Bill Robson (the latter providing two detailed sets of comments), while Lars Osberg offered suggestions at the Canadian Employment Research Forum (CERF) conference in Vancouver in June 2000, and John Richards gave feedback on some of the policy implications. Roger Sceviour provided excellent research assistance throughout. Lenore d'Anjou's copy editing is much appreciated for having made for a considerably better product, while Barry Norris's shepherding of the paper through to publication was accomplished with efficiency, tolerance, and good humor.

1 Recent cross-sectional (static) studies of family incomes in general, as well as those that focus on poverty *per se*, include Beach and Slotsve (1996); Blackburn and Bloom (1994); Dooley (1994); Hatfield (1996); Love and Poulin (1991); McWatters and Beach (1990); Sharif and Phipps (1994); and Zyblock (1996a; 1996b). The few dynamic analyses to date include Economic Council of Canada (1992); Finnie (1993; 1994; 1995; 1997); and Picot, Zyblock, and Piper (1999). See Finnie (2000) for more details.

Until recently, however, the sort of longitudinal data following individuals over time that are required for the study of income dynamics in general, and poverty dynamics in particular, have not existed in Canada, and the country has increasingly stood out internationally in this regard.[2] Fortunately, the recently developed Longitudinal Administrative Database (LAD) provides a new opportunity for studying poverty dynamics in this country.

The contribution of this *Commentary* is to report the results of the first general empirical study of low-income dynamics in Canada.

The contribution of this *Commentary* is, therefore, to report the results of the first general empirical study of low-income dynamics in Canada. Covering the 1992–96 period, the analyses focus on the following items:

- some initial cross-sectional (static) poverty rate benchmarks;
- annual rates of entry into and exit from poverty by sex, age, and family type;
- empirical hazard rates and associated survival rates associated with exiting and re-entering poverty;
- total time spent in low income;
- the income changes that occur when individuals enter or exit poverty;
- the specific factors associated with movements into and out of poverty;
- how the rates of entry, exit, and re-entry change over the course of a given spell of poverty or after exit from a previous spell; and
- the effects of past poverty spells on the probability of individuals' being poor or entering low income in a later year.

The analysis is generally broken down by sex, age group, and family status, with the patterns of poverty dynamics varying to a great degree, sometimes enormously, along these dimensions (for example, the experiences of lone mothers versus those of others). The methodological approaches range from simple tabulations and counts to the estimation of various econometric models that specify entry, exit, and re-entry as a function of the critical family status and duration effects and of other personal attributes and situational characteristics, such as province, language, and the size of the residence area.

In the final section, the *Commentary* addresses some related policy issues, including how various sorts of initiatives might be targeted on different types or groups of individuals depending on the dynamic nature of their poverty experiences. At the most basic level, any policy measures targeted on the small core of the population that is chronically poor would presumably be challenging, but they could also be extremely rewarding if they yielded even modest successes, since a very substantial share of the poor population at any given time is made up of this hard-core group. Delivering something like 6 percent of the population from poverty on a more or less permanent basis would, for example, cut poverty rates in any given year by about 40 percent, a tantalizing proposition from a policy perspective regardless of where a reader (or policymaker or politician) resides on the political spectrum.

The paper closes with some suggestions for future research.

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2 Atkinson, Bourguignon, and Morrison (1992) and OECD (1998), for example, comprise comparative studies of earnings and income dynamics from which Canada was excluded. The Longitudinal Administrative Database was, in contrast, the source of Canada's inclusion in Antolin, Dang, and Oxley (1999), a project in which the author participated.

General Introduction to Data and Terms

The LAD is a representative sample of Canadian taxfilers followed as individuals over time and matched into family units on an annual basis, thus providing individual- and family-level information on incomes, taxes, and basic demographic characteristics in a dynamic framework.

The LAD is a 10 percent representative sample of Canadian taxfilers followed as individuals over time and matched into family units on an annual basis, thus providing individual- and family-level information on incomes, taxes, and basic demographic characteristics in a dynamic framework. The first year of data is 1982, and the file ran through 1996 at the time this project was undertaken. Only the 1992–96 period is used, however, since social assistance (welfare) income is not as fully or accurately represented in the file in the earlier years.[3] (See Box 1 for further details on the general attributes of the LAD.)

Unit of Analysis, Income Measure, and Low-Income Threshold

This study focuses on the low-income dynamics of individuals, although it views income in a family context on the basis of the usual assumptions that members of families pool and share their incomes and that there are certain economies of scale for people living together.

Income is defined quite broadly to include earnings, self-employment income, returns to investments, and all other private sources (except capital gains), as well as government transfers and tax credits. The appropriate deductions are then made — Canada Pension Plan or Quebec Pension Plan (CPP/QPP) and unemployment insurance or employment insurance (UI/EI) payments and child and spousal support payments) — after which tax payable is subtracted to arrive at post-tax (disposable) income.

Total disposable family income is calculated by making the appropriate summations over all family members and is then adjusted for family size with the increasingly widely used square-root equivalence scale whereby a family's needs are assumed to rise in a decreasing manner with the number of its members.

The low-income threshold is based on an established international standard: 50 percent of median adjusted family income. For this analysis, the median was calculated for each of the five years covered by the study (1992–96), and the average of these values used as the (fixed) threshold in all years. The measure is thus a relative measure (derived as it is from the distribution of incomes in the underlying population in each year) but then fixed over the period of analysis to allow us to study poverty dynamics over time around a constant threshold.

Selection of the Working Samples

The analysis was restricted to nonstudents aged 20 and over (no upper limit) who filed tax forms for all years from 1992 through 1996. Children were not *directly* included in the sample group since they do not typically file tax forms (at least not until age 16)

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3 Only since 1992 has social assistance been a separate item on individuals' general T-1 tax return forms (entering various calculations and thus been verified by Revenue Canada) and the corresponding T-5 SA forms been sent out to individuals. The social assistance data on the LAD appear to cover 80 to 90 percent of all such payments, thus comparing favorably with other Canadian survey databases in this regard.

Box 1: *The LAD Database*

The LAD is constructed from Revenue Canada tax files, with individuals selected into the database according to a random number generator based on social insurance numbers and followed over time by the same identifier. The LAD's coverage of the adult population is very good, since, unlike the United States and some other countries, Canada has a high rate of tax filing. (Higher-income Canadians are required to file, while lower-income individuals have strong incentives to do so to recover income tax and other payroll tax deductions made throughout the year and to receive various tax credits.) The LAD thus comprises a dynamic, largely representative sample of the adult Canadian population.

The representativeness of the LAD is especially significant for an analysis of low-income dynamics, since survey-based databases — both cross-sectional and longitudinal — often present problems in locating and following low-income individuals in particular. Relative to these other databases, the LAD has favorably low sample-selection and attrition biases.

The large number of observations in the LAD (about 2 million observations in any given year) permits robust and detailed analysis; for example, in this study, outcomes are generally broken down separately for men and women of four different family types, even as some very specific aspects of the low-income experience are investigated, something that would typically be impossible with survey-based databases.

Finally, the income information (based on individuals' tax declarations) is excellent and, even allowing for false reporting, probably superior to what is typically available with data from surveys where respondents provide the information themselves.

In summary, the LAD's representative nature, dynamic structure, and available income information make it well suited to the study of income dynamics generally and low-income dynamics in particular.

and are thus not generally represented in the LAD database. But the analysis of adults according to their family status implies the presence and number of children, and thus the situation of children is implicitly addressed by observing the income dynamics of their parents.[4] (See Box 2 for further details regarding the samples.)

Family Status

The LAD determines family composition by matching individuals according to their tax file information, including the imputation of nonfiling family members (spouses and children) where appropriate. Individuals' declarations of common-law marriage are treated as the equivalent of legal unions (with matches made or imputed partners ascribed in every case for such individuals), but the process also involves matching individuals assumed to be in undeclared common-law relationships based on address matches, individuals' names and ages, and the identification of any other individuals resident at the same address. For this study, individuals were ultimately classified as belonging to one of the following family types (see Box 3 for further details regarding the treatment of family status in the LAD):

- single — no spouse and no children;
- married ("attached"), with no children;

4 See Finnie (1997c) for a poverty analysis based on market income that focuses entirely on families with children.

Box 2: *The Selection of the Samples for This Study*

The lower age cutoff (individuals under age 20 are deleted) is somewhat arbitrary but should eliminate students and others in the earliest stages of the school-to-work and home-to-independence transitions, for whom poverty status and poverty dynamics have a significance rather different than for others. Postsecondary students are also deleted, on the basis of various education-related tax deductions, because it is difficult to know if such individuals share in their family's income and because of the special nature of any poverty situation for this group, whose members tend to be measurably poor but essentially by choice as they make major investments in their futures.

The filing status restriction is imposed largely of necessity. Although imputed records are created for nonfiling individuals if they are implicitly or explicitly identified by a filer, their social insurance numbers are not generally known, so many such individuals cannot be followed over time as required for this dynamic analysis, while the information on their incomes in particular is also generally truncated. The restriction to individuals who were included in the database during all five years allowed consistent samples to be used throughout the analysis and made the longitudinal verification of family status (see Box 3) easier and more effective.

Fortunately (as noted in Box 1), most Canadians do file tax forms in every year, so this restriction is not as serious as it would be in the face of lower filing rates. Furthermore, in most cases, the nonfiler is a member of a couple where the partner typically is a filer, so the record for individuals of given family types and age groups can be studied by proxy (as discussed at several points in the text). For example, by far the greatest rate of nonfiling is among elderly attached women, whose spouses are well represented in the samples, and extrapolations can thus be made across the various sets of results as required. The under-representation of certain groups does mean, however, that some of the distributions reported in the *Commentary* (for example, poverty shares by age-sex group) should not necessarily be taken to be exactly representative of the underlying population in general.

- married ("attached"), with children;
- lone parent; and
- "filing child" — an unattached individual over age 20 deemed to be living with his or her parents.

Other Variables and Some Notable Exclusions

Other variables included in the analysis are those that appear as regressors in the various econometric models estimated. These include the individual's age; province of residence (as of year end and thus where taxes were payable); whether or not the individual moved from one province to another from one year to the next; language (French or English, corresponding to the tax form used by the individual), including a minority language indicator (anglophones in Quebec, francophones in the rest of Canada); size of the area of residence (identified from the individual's postal code); and a series of calendar-year dummy variables to capture cyclical effects and more general time trends.

This list has a couple of notable omissions. First, while education would certainly be interesting to include in any analysis of poverty dynamics, the information is simply not currently available on the LAD database. Second, detailed job characteristics, including wage rates, hours of work, occupation, industry, and so on, are similarly

Box 3: *Family Status*

The exercise of matching individuals into families on the basis of information given on tax forms is based on algorithms, developed at Statistics Canada over many years, that seem to be quite successful in correctly identifying couples and the children in any household. (This positive evaluation is based on *a priori* assessments of the good sense that characterizes the established procedures, on the inspection of micro records, and on various checks with other data sources of the resulting totals.)

Nevertheless, there remains an inevitable margin of error whereby some couples are not matched when they should be, others are matched when the indicated relationship does not actually exist, and the identification of children is similarly imperfect. In particular, the LAD has more lone-parent families than official estimates, especially in the early years.

For a cross-sectional analysis, these matching errors are perhaps not so important. However, any longitudinal analysis based on tracking individuals across changes in family status is at much greater risk. For example, if a match is correctly made in one year, missed in the next year, and made again in the third year, the couple mistakenly appears to have first been married, then unattached, and then remarried, and the associated income dynamics are completely false. Furthermore, with divorce and remarriage being a relatively rare event in any given year, a small number of such errors could comprise a sizable proportion of individuals who change status from one year to the next and thus have relatively large effects in any associated dynamic analysis — especially one in which family structure is so critical for both the dependent variable (adjusted family income) and one of the key variables of analysis (family status and changes therein).

These potential problems were addressed in this study by reflecting on the underlying concepts (for example, what exactly is the state of "marriage" in an economic context?) and then conducting a detailed longitudinal analysis of the data to derive a series of rules for deleting the more problematic records from the analysis. In particular, individuals were dropped from the entire study if over the 1992–96 period they were observed to (1) change family status more than two times (2.1 percent of the sample); (2) change spouse more than two times (0.1 percent of the sample); (3) separate from and then go back to the same partner unless the marital status code indicated separation or divorce in the in-between years (0.5 percent of the sample); or (4) be matched to a given individual in a given year but not in either of the adjacent years (4.0 percent of the sample) in the case of those with no marriage declaration on their tax forms (that is, common-law matches).

Not surprisingly, this exercise reduced the movement across family types in the working samples and also changed the poverty rates and dynamics to a significant degree, thus verifying the importance of carrying out such a cleaning of the database for this particular analysis.

missing, precluding any detailed analysis of the role of labor market outcomes in poverty dynamics. One can, therefore, imagine this analysis, which takes particular advantage of the LAD's size and excellent income information as well as its basic longitudinal aspect, as complementary to work that might be undertaken with other databases that include these other pieces of information.

The Cross-Sectional Setting

Average poverty rates for the taxfiling individuals included in the working samples for the 1992–96 period covered by this analysis (see Table 1 in the appendix, where all the

tables are found) are roughly in line with those based on other data sources and other low-income measures (see, for example, Statistics Canada 1999, table 13, pp. 64–65).[5] The rates are highest for individuals heading lone-parent families (52 percent for women and 31 percent for men) and also quite elevated for unattached individuals (23 percent for women and 25 percent for men).[6] Couples with children have much lower rates (10 and 13 percent), and childless couples are still better off (5 and 8 percent).

The distribution of the poverty population (of the working samples) by these same family-type categorizations reflects the rates of low income and underlying sub-population sizes that characterize each group. Despite the low incidence of low income among attached individuals (those in couples), their large share of the general population caused them to make up nearly half of the relevant low-income population (46 percent for men and women combined). Singles made up another 36 percent, single parents (mostly women) comprised an additional 17 percent, and those in the filing child group made up the remaining 2 percent.[7] Thus, while there is always reason to focus policy on the groups with the highest poverty *rates* (single parents in particular), truly significant declines in the overall rates of low income would clearly require declines for some of the groups with rates that are already relatively low.

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Breaking the low-income rates down by age as well as family type (Table 2) indicates some significant variation in the patterns along this dimension. For example, the younger and older female lone parents (ages 20 to 39 and 65 plus, the latter being a very small group) had significantly higher poverty rates than did those in the prime age group (40 to 64), while elderly singles did significantly better than their younger counterparts, reflecting the poverty-relieving effects of both public and private pension schemes.

The figures also reflect a significant element of the taxfiler basis of the LAD database: a significant underrepresentation of elderly attached women, indicated by the gender differences in the poverty rates for these females and their male counterparts — a finding that has implications for some of the results that follow (as discussed where appropriate). The general notions are that the males are more representative of the situation faced by these older couples, and that the underlying population shares must

5 There are a number of reasons why the rates reported here may differ from those reported elsewhere. First, the square-root equivalence scale and the 50 percent of median low-income threshold used here correspond to international conventions more than to the typical Canadian approaches, while the close-to-census-family definition of families used in the LAD also differs from what is typically employed, as does the precise treatment adopted here for adult children and parents in families that include only adult children (their incomes are considered pooled but they are classified as if they lived apart). Also, the tax-based income coverage represented in the LAD is probably more accurate than that provided in most survey-based databases, perhaps especially with respect to social assistance income, which is such an important source for low-income families. Finally, while the taxfiler orientation of the LAD's sample frame generally leads to a sample that is representative of the overall population (including low-income families, due to the incentives for filing that various tax credits provide), the data underrepresent certain classes of nonfiling individuals relative to the population at large, especially women (particularly older women) with husbands who file, as discussed in the text.

6 These are the simple means of the annual rates over these years that are given in Finnie (2000). The same holds for the other average rates shown below.

7 Low-income rates are not reported for the last group because the number of such individuals was generally small, and such reporting would, in some cases, necessitate the suppression of results for other groups according to the confidentiality rules that govern the LAD.

be interpreted with this underrepresentation kept in mind.[8] The table also shows the distribution of the poor with the age dimension taken into account.

A Descriptive Analysis of Low-Income Dynamics

Moving now from a static perspective to a dynamic one, we turn to what the data show about rates of entry into and exit from low income, the total time spent in low income, and the extent of the income changes involved as individuals moved across the low-income threshold. (Note that the tables shown here report year-to-year changes; in other words, they do not reflect what happens within a single calendar or tax year.)

Annual Rates of Entering and Exiting Low Income

The annual rates of entering and exiting low income are set out in Table 3 by family status and the related changes therein. The reported figures represent the averages of the year-to-year rates that held over the 1992–96 period (see Finnie 2000).

Entering Low Income

By far the highest entry rates were for women who became single parents from one year to the next, regardless of their family type the previous year.

By far the highest entry rates were for women who became single parents from one year to the next, regardless of their family type the previous year: whether it was single (30 percent), part of a couple with children (47 percent), part of a couple with no children (48 percent), or a filing child (a full 70 percent). Some of these rates are astoundingly high. They contrast especially with those for women who remained with their spouses (less than 5 percent in the presence of children, 2 percent in their absence) or who were single (not quite 5 percent) but are also much higher than those of women who were lone parents from one year to the next (13 percent), the latter indicating that single mothers who were out of poverty in a given year probably had a good deal going for them relative to those just entering the state.

Other fairly high rates of entry include women who went from being in couples to being unattached, especially those who left children behind (that is, those who moved from being "attached with children" to being "single"), and women who went from living with their parents (being a "filing child") to being on their own or attached with a child.

For men, the patterns are broadly similar, although not as dramatic. Entry rates were highest for those who became lone parents (though not nearly as great as those for their female counterparts). There were relatively few such cases, however, meaning that this dynamic is not very important to the overall story. The rates for males who remained with a partner were, of course, similar to those for women (their partners on a statistical basis), while the rates for those whose relationships ended were

8 That is, the male-female differences in the low-income rates of attached individuals were quite small for the younger age groups, reflecting the relatively high rates of filing by both members of such couples (in other words, the similar rates for males and females reflect the same situation observed from each side), while the rates for the older age group were significantly higher for men than women, indicating that women in low-income families are less likely to file than are their partners (and also less likely to file than women in higher-income families).

significantly higher than the rates for those who remained with their spouses, but again the rates for men are not as high as those for women.

One interesting case where the male and female records are quite similar, though, is that of individuals who went from the status of filing child to being on their own or having a partner and a child; the entry rates were about as high for males as for females in the two situations (about 30 percent and 20 percent, respectively). Furthermore, going from being a filing child to being attached with no children was actually *more* likely to result in entry into poverty for males than for females (entry rates of 11 percent and more than 8 percent, respectively). The time of young people's leaving the parental home is thus observed to be a key transitional period, for men and women alike, in terms of the risk of entering poverty, one that is presumably of particular policy concern when children are involved.

In summary, family status and changes therein are powerful predictors of the probability of entering poverty, especially for women. We will see, furthermore, in the econometric results presented below that these family-status effects dwarf all other influences in this respect. That said, these results must be put in the context that changes in family status are relatively rare for any given person in any particular year, which is one reason the low-but-steady rates that characterize individuals in couples left them with nontrivial rates of low income in any given year and large shares of the low-income population at any point in time (as seen above).

Exiting Low Income

The year-to-year poverty exit rates shown in the right-hand columns of Table 3 are largely mirror images of the entry rate patterns just examined. Thus, the highest rates are for lone mothers who became attached: this change lifted an average of two-thirds (with children) or three-quarters (without children) of all such individuals out of low income in the year the event occurred. In contrast, lone mothers who remained in that state had extremely low rates of exiting low income — less than 14 percent on average. Women who became lone mothers over the interval in question had similarly low (or lower) exit rates.

A woman who was in poverty in a given year and who was a single mother in the next had no more than about a 10 percent chance of escaping poverty over that period.

All in all, a woman who was in poverty in a given year and who was a single mother in the next had no more than about a 10 percent chance of escaping poverty over that period. This astounding statistic points to a group deeply mired in straitened circumstances, often due to events beyond these individuals' own (sole) responsibility. Single females without children had similar patterns, although not as extreme; their rates of exiting low income were very low unless they became attached (with or without children).

Among males, the results are again broadly similar to those among females qualitatively but less dramatic quantitatively. Thus, the small group of single fathers had — interestingly — relatively high rates of exiting low income if they married and relatively low rates if they did not, and men who became lone parents stood a relatively low chance of exiting low income in that year, but the differences are, in most cases, not as great as for single mothers. The same holds for unattached males (singles): low rates of exit if they remained single, much higher if they married. The results for stable couples are relatively similar for males and females, as they should be (males again better represent the true situation due to their being the more consistent taxfilers,

especially for the older groups), with exit rates of 30 percent and 34 percent for those with and without children, respectively.

One final interesting result is that men and women with spouses and children who then became unattached had rates of leaving low income that were moderately higher than those of individuals who remained with their spouses; this was also true for men (but not women) in relationships with no children. In short, leaving a relationship appears to have sometimes been the route to leaving poverty, especially for men.[9]

"Hazard" and "Survival" Rates of Exiting and Re-entering Low Income

So far we have focused only on individuals who entered or exited poverty between one year and the next. We can gain a more precise view of the dynamics involved by considering the probability of individuals' exiting poverty after experiencing a spell that lasted one, two, or more years. Also important is the probability of re-entering after escaping.

The technical terms for what we are examining here are the *hazard rate* for exiting a current state and the *survival rate* of remaining in that state. (See Box 4 for an explanation of these terms, which may seem incongruent for describing people's getting out of the misfortune of poverty.)

Exiting Low Income

The empirical hazard rates of leaving low income after a poverty spell had lasted a given number of years are set out in Tables 4a and 4b. To be included in these calculations, an individual's entry into low income had to be observed over the 1992–96 interval.[10] The numbers thus capture the year-to-year exit rates of a representative sample of new poverty spells.

The calculations for Table 4a were further restricted to individuals who did not change family status from the one year to the next. The most important general result is that the hazard rates of exiting low income declined almost uniformly — and generally quite steeply — with the amount of time spent in that state: the longer a person spent in low income, the lower the probability of leaving it in a given year.

A hard core of individuals seem very unlikely to leave low income after a certain number of years in that state, and only significant interventions would likely provide much hope of their ever significantly improving their lot.

By family status, the greatest relative declines in exit rates (that is, the steepest hazard functions) were for lone parents, with single individuals running a fairly close second. For low-income spells that lasted four years (the maximum observed in the data), exit rates were typically in the 10–15 percent range. In short, such individuals were extremely unlikely to exit poverty at this point.

The broad implications of these findings are clear: a hard core of individuals seem very unlikely to leave low income after a certain number of years in that state, and only significant interventions would likely provide much hope of their ever significantly improving their lot. (See Box 5 regarding the interpretation of these declining hazard rates in the context of unobserved heterogeneity and pure duration effects.)

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9 This issue and the related implications are discussed in Finnie (1993; 1994; 1995).

10 In technical terms, such spells for which entry is not observed are "left-censored" and cannot be included because the critical duration terms cannot be identified.

Box 4: *"Hazard" and "Survivor" Rates*

The use of the term *hazard rate* in reference to the proportion of individuals who leave poverty — clearly a good thing — may seem curious to many readers, but there is a good reason for it, and at least this one time the obfuscation is not the responsibility of the economics discipline. As the text indicates, the first set of hazard rates referred to here represents the proportion of individuals who left low income on a year-by-year basis over the course of a given spell — as opposed to the number who left in a given calendar year regardless of how long they had been poor. The origin of this statistical concept lies with the life sciences and was developed in the context of contracting illnesses, succumbing to death, and so on — thus indeed referring to "hazards" as the ordinary person might think of them. Once developed, though, the phrase stuck — and fairly so in that it refers to a particular statistical concept and one for which it is difficult to think of a substitute term that is both more intuitive and connotes this particular notion. Hence its employment in this paper (as is standard in economics).

The references to *survivor rates* with respect to remaining in poverty are perhaps equally counterintuitive, but the source of the term is the same as hazard rates (for example, surviving an illness) and again makes sense when one abandons the notion that the underlying event is good or bad and is instead only a particular statistical term.

Hazard and survivor rates are also used in the context of remaining *out of* poverty, perhaps bringing the concepts back onto a more intuitive footing.

The related survivor rates in the right-hand part of Table 4a show the proportion of individuals who were likely to remain in low income after a given number of years — the cumulative inverses of the hazard rates just discussed. (Again, see Box 4 for an explanation of this concept.) The relatively high exit rates for attached individuals at all points in time resulted in their having relatively low survivor rates (below 20 percent) by, say, four years after the beginning of a given spell of low income, while the survivor rates for the lone parent and single groups are approximately double this level (mostly between 35 and almost 50 percent). Again, as the exit rates imply, long spells of low income were relatively uncommon for some groups but much more likely for others.

The hazard and survivor rate exercise was repeated but allowing for changes in family status (see Table 4b). This alternative approach permits the capture of a fuller set of dynamics. For example, a lone parent or unattached individual might have become married during a given period and thus stood a good chance of exiting low income as a result; that dynamic was included in the new calculations, whereas such individuals were excluded from the results reported in Table 4a. Not surprisingly, Table 4b shows rates of leaving low income for singles and lone parents that are significantly higher than those of the previous exercise — precisely because their rates of exiting low income were much higher in the face of a change in family status (that is, if they married). The results imply that about a quarter to a third of singles and lone parents were likely to still be in low income after four years — rates that are still quite high but not as bad as those from calculations restricted to those who do not change status.

Re-entering Low Income

The same sort of approach employed for calculating exit rates can be used to find the hazard rates of re-entering low income after ending a previous spell (see Tables 4c and 4d.

Box 5: *Unobserved Heterogeneity and Pure Duration Effects*

How can we explain the general finding that the annual rates of leaving low income declined with the length of the spell? As is well known in the relevant literature, two principal factors are likely at work. First, individuals who were at any point more likely to leave low income ("escapers") were, by definition, more likely to have done so in the early years, leaving the remaining sample with an increasing proportion of individuals who were less likely to leave low income ("nonescapers") in the later years; the effects are, in short, those of sample composition. Second, being in low income is likely to have direct causal effects in terms of actually reducing the probability of escaping the situation in subsequent years for given individuals as they become more estranged from the labor market, face stigma, and encounter other disadvantages related to the actual passage of time spent in poverty.

Unfortunately, the data do not allow us to disentangle these "unobserved heterogeneity" effects from those of "state dependence" (or "pure duration"). This is unfortunate, because this differentiation is especially important from a policy perspective — since the former effect suggests the need to do something about the individual (or his or her situation) *per se*, such as improving labor market skills, providing good employment opportunities, and so on, while the latter generally suggest the need for policy options focused on early interventions that might somehow lift the individual out of low income before the situation deteriorates further simply due to the accumulation of time spent poor.

The declining re-entry hazard rates with respect to the re-entry into poverty after escaping that state similarly suggest a dynamic where, on the one hand, individuals who are quicker-to-re-enter *types* do, in fact, tend to do so sooner; therefore, individuals who remain out of low income are increasingly slower-to-re-enter types, driving the hazard rates down over time (unobserved heterogentiy effects). On the other hand, there are likely also state dependence effects related to the time spent out of low income, as individuals become more integrated into labor markets, learn new skills, and so on, further contributing to a decline in re-entry rates over time (pure duration effects).

The numbers reported are thus based on individuals who were first observed to exit a low-income spell over the period covered (so that the beginning of the period of being at risk for re-entry could be observed), with annual re-entry rates then calculated as of each year spent out of low income.

The results shown in Table 4c are again further restricted to individuals who did not change family status in the particular year indicated. The first thing to notice is re-entry rates, which are generally much higher than the annual entry rates for the population at large seen earlier (Table 3) — indicating, not surprisingly, that the probability of entering low income was generally much higher for individuals who had recently experienced a spell of it than for those who had not. For identifying a population at risk of entering low income, past experiences of it thus seem to be a powerful predictor, a result that shows up again in the econometric models presented below.

Second, the usual family-status effects are again observed, with re-entry rates that are generally higher for lone parents and singles than for attached individuals. The differences are, however, not generally as great as for the more general annual entry rates seen above, suggesting that conditioning on previous poverty spells represents a stronger selection mechanism in the case of couples than for lone parents and singles — a result that makes sense since low income was generally a more widespread experience among the latter groups.

Third, re-entry rates declined significantly with the number of years spent out of low income, but much more sharply for attached individuals than for singles and lone parents. By the third year (the longest post-poverty interval observed in the data), re-entry rates were a fairly low 10 percent or less for attached individuals, somewhat above this mark for singles (with significant variation by sex and age), but still roughly about the 25 percent for single parents. In short, certain groups (the attached) were at relatively low risk of re-entering low income soon after the end of a previous spell, while others (especially lone parents) continued to tumble back in at relatively high rates even after a number of years.

Certain groups (the attached) were at relatively low risk of re-entering low income soon after the end of a previous spell, while others (especially lone parents) continued to tumble back in at relatively high rates even after a number of years.

The survivor rates seen in Table 4c again represent a useful summary representation of the cumulative risk of slipping back into low income after a previous exit. "Surviving" in this sense means remaining nonpoor, and the rates after three years generally range from just over one-half to almost three-quarters for attached individuals, with the highest rates being where no children were present (especially for elderly couples). The three-year survivor rates vary more and are generally somewhat lower for unattached individuals (from about 45 percent for the prime age groups to more than two-thirds for the older males and females) and were down to the 30–40 percent range for single parents, indicating that more than half of such individuals had fallen back into low income within three years of leaving a previous spell.

Repeating the re-entry calculations to include individuals who changed family status (Table 4d) does not generally change the results a great deal, again indicating that changes in family status were less critical to the dynamic of remaining out of low income after a previous spell than for certain other aspects of the low-income experience. The differences observed indicate, however, that survivor rates were moderately higher for lone parents and singles than in Table 4c, reflecting the greater probability of remaining out of low income for the individuals of this type who married over the year in question, while these rates fell slightly for attached individuals, due to the greater probability of moving back into poverty associated with a divorce or, in the case of initially childless couples, having a child. In brief, the direction of the differences by family status remain as before (higher survivor rates for couples than for singles and lone parents) but are moderately attenuated relative to the case where such changes in family status are not taken into account.

Total Time Spent in Low Income

Having analyzed the rates of entering into, exiting from, and re-entering low income, we can now turn to examining individuals' complete longitudinal poverty profiles by looking, first, at the total number of years individuals spent in low income over the 1992–96 period covered by the analysis; second, at the split between the long-run and the short-run poor among individuals in poverty in any given year; and, finally, at the distribution of the long-run poor by sex and family type.

Total Time in Poverty

Since an individual's family status can change over time, the total-time-in-poverty profiles are presented in two different ways. First, Table 5a shows the number of years spent in poverty by individuals who had the same family status in all five years studied (1992 through 1996). The most dramatic results are again for female lone

parents, with just 31.1 percent remaining out of poverty all years and a full 36.0 percent poor in every year.

At the other end of the spectrum (focusing again for convenience on the more representative male figures), just over 80 percent of those who were consistently attached (that is, had a legal or common-law spouse) never experienced a low-income spell, with similar rates for those with and without children (80.2 and 83.7 percent, respectively). For filing children, the never-poor rates were even higher — almost 90 percent. For unattached individuals, the poverty experience was considerably more widespread: just 60.2 and 66.3 percent of the unattached males and females were consistently nonpoor, and chronic poverty characterized 16.4 and 13.3 percent of the single males and females, respectively.

In short, when looked at in a dynamic framework, being in poverty was generally relatively uncommon and only rarely chronic for most continually attached individuals and young adults living at home, was considerably more widespread for singles, and touched the great majority of lone parents at some point — with constant poverty actually more common than never being poor for lone mothers.

Poverty touched the great majority of lone parents at some point — with constant poverty actually more common than never being poor for lone mothers.

A more inclusive representation of the total-time story results where the sample restrictions are relaxed to include individuals who changed family type. Table 5b shows the results of classifying people by their family status in the initial year (1992). The first row in the table indicates that, of the entire population in the working sample, approximately three-quarters were never in low income, almost 6 percent were in low income every year of the period, and the remainder were in low income between one and four years. More women than men experienced poverty at every point, the difference being greatest for those in low income in all years (7 percent for women versus less than 5 percent for men).

Looked at from another perspective, 26.4 percent of the sample population experienced a spell of poverty over the five years covered by the analysis, and almost exactly half of those individuals (50.2 percent) can be classified as long-run poor in the sense that they were in low income more than half the time (three or more of the five years covered by the study).

The results by family status generally resemble those observed in Table 5a, the differences being greatest for lone parents and singles, who register lower rates of poverty here due to the improvements often experienced with marriage (remembering that individuals who change marital status are included in this table whereas they were excluded from the preceding one).

Finally, Tables 5a and 5b allow us to examine the incidence of poverty using a longer-term measure than the more conventional annual metric, by comparing the "ever poor" columns with the average annual rates given in Table 1. The longer-term rates are of course, higher. More interesting is that they ranged from 1.3 to 2.0 times the annual rates, with this ratio varying inversely with the overall level, meaning that poverty rates converge somewhat across family types in the longer term — effectively, because the rates of lone parents (especially) and single individuals had less room to increase from their already-high levels measured on an annual basis. The long-run incidence of poverty was in the 18–20 percent range for individuals who started the period with a partner (with or without children), 39 and 36 percent for unattached males and females, respectively, and a full 68 percent for lone mothers (41 percent for their male counterparts).

The Composition of the Poor in a Given Year

We can build on these findings by showing the composition of the low-income population in each year in terms of individuals' longitudinal poverty profiles over the full 1992–96 period (see Table 5c). Perhaps the most interesting finding is that, whereas the chronically poor (those with low income in all five years) made up just 5.9 percent of the sample population (Table 5b), they represented, on average, 39.9 percent of the poor population in any given year of the period (Table 5c). The share of long-term poor was somewhat higher for females than for males (42.3 percent versus 36.6 percent).

At the other extreme, the "briefly poor" (defined here as individuals who were poor only one year out of the five) made up just 8–16 percent of the low-income population in any given year (11.1 percent averaged over all five years). The rest of the poor population was divided among those with two-, three-, and four-year spells of poverty.

Low-income rates could be cut by an impressive two-fifths for all time (more or less) if the just 6 percent of the population who are always poor could somehow be lifted out of poverty on a long-term basis.

The good news here is that low-income rates could be cut by an impressive two-fifths for all time (more or less) if the just 6 percent of the population who are always poor could somehow be lifted out of poverty on a long-term basis; the figure rises to three-fifths if we include in the chronically poor group those who were poor four out of the five sample years. The problem, of course, is that this group is also the most challenging one from a policy perspective precisely because the consistent nature of its low-income experience presumably stems from quite fundamental causes.

Nevertheless, if such individuals could, for example, be effectively brought into the labor market and given a solid start that allowed them to build at least minimally successful careers, the payback could be enormous, both in social terms (that is, helping these individuals achieve better lives) and also with respect to the government expenditures required to support and otherwise deal with this core socio-economic underclass. Any successes in this respect would be additionally rewarding in the long term to the degree that they improved the life chances of the children involved. Even quite costly investments targeted at the long-term poor might, therefore, constitute a very worthwhile social investment.

The Composition of the Long-Run Poor Population

A final set of calculations based on these total-time profiles flips the perspective to show how the always poor, as well as the never poor and the residual "sometimes poor" groups were made up of individuals of different sexes and family types. For example, we know from the preceding tables that single mothers tended to have high rates of chronic poverty and that the consistently poor made up a sizable share of the poor in any given year, but it remains to be seen to what degree single mothers and others made up the overall long-run poor population. The answer depends on the size of the underlying sex and family type groups in combination with their dynamic poverty profiles.

The results in Table 5d show that, whereas unattached individuals and single parents made up just 23.7 percent of the sample population (summing the relevant figures in the "all" column), they represented a hugely disproportional 63.0 percent of the "always poor" group, a difference that reflects their much higher rates of long-run poverty. Male lone parents were few in number and thus comprised a trivial share of this group. Perhaps more surprisingly, unattached females (single, no children) made

up a larger component of the consistently poor population (27.4 percent) than did single mothers (15.9 percent), while single males were another large component (18.8 percent). Also, while attached individuals had low *rates* of long-run poverty (see Tables 1 and 2), the large size of the underlying population groups left them representing a significant 36.3 percent of the long-run poor (males and females taken together).

While, therefore, single mothers' high rates of chronic poverty might be good reason to direct policy measures to them, even delivering this *entire* group from long-run poverty would reduce the size of the overall always-poor population by only about 16 percent. Thus, other groups would have to be helped in significant measure to diminish the number of long-run poor — and the poor in any given year — by any truly substantial amount.

Table 5e shows the outcomes of similar calculations for all individuals, including those who changed family status over time (Tables 5d and 5e thus correspond to Tables 5a and 5b in terms of sample composition), but the general nature of the results holds.

Changes in Incomes When Individuals Enter and Exit Poverty

When individuals enter or exit poverty, are the underlying income changes generally large or small? Do people just slip over the relevant threshold, or are the changes much more substantial, representing truly important shifts in standards of living? To answer these and related questions, Tables 6a and 6b present the relevant dynamics in terms of income-to-needs ratios (that is, adjusted family income levels relative to the low-income threshold).

Among the people who entered poverty in a given year (Table 6a), about 30 percent of the entries observed over the full 1992–96 period (all individuals taken together) experienced relatively small movements — changes within 25 percent of the low-income threshold either way (that is, the net changes ranged from effectively zero to 50 percent). The remaining approximately 70 percent of the changes involved shifts of greater magnitudes, many of them quite large indeed; for example more than 17 percent of the movements were declines from income levels more than twice the level of the low-income threshold in the previous year.

In a roughly parallel fashion, 32 percent of the movements out of poverty involved small changes in individuals' relative well-being (from within 25 percent under the poverty line to 25 percent over), about 14 percent were rises to income levels more than twice the low-income threshold, and the others involved movements of other magnitudes (Table 6b).

The great majority of the movements into and out of poverty represent substantial changes in income, not smallish shifts at the margin.

The conclusion here is that the great majority of the movements into and out of poverty represent substantial changes in income, not smallish shifts at the margin.

Econometric Models of Entry to and Exit from Poverty

This section of the *Commentary* reports the econometric analysis of entry into and exit from low income, a framework that allows us to simultaneously identify the effects of various personal characteristics and situational influences, including family status, on these dynamics. To allow for a more accessible presentation, the underlying panel logit

model results have been transformed into simple probability effects, although the statistical significance of the underlying coefficient estimates is also shown in the usual manner (see the notes to the tables). Findings are presented separately for males and females of each initial family status, thus allowing the models' structure to vary along these dimensions. (See Box 6 for more details regarding the models.)

The Annual Entry Models

The probability of individuals' entering low income in a given year — estimated for those currently out of poverty — is set out in Table 7a. The baseline probabilities given in the first row essentially represent the average rate of entering low income for individuals who did not change family status over the period in question and who had the other omitted (reference) characteristics associated with the regressors included in the models: that is, the individual had one child (in the case of the family types involving children); was 40–49 years old; was an English-speaking resident of Ontario (a relatively low-poverty province) living in a large urban area; and did not move to another province over the relevant two-year period. The baseline results also pertain most directly to the 1992–93 period, because the calendar-year dummy variables allowed for general shifts in the probability of entering low income over the other years covered in the data.

The baseline probabilities line up quite well, as they should, with the simple annual entry rates shown in Table 2 for those individuals who did not change family status between one year and the next.[11] Thus, after one controls for the other variables included in the models, lone parents who remained in that state from one year to the next generally had the highest probability of entering low income over that interval, with rates of about 8 percent for males and females alike; singles come next, with rates in the 6 percent range; while the predicted probability of attached individuals' entering low income on a year-over-year basis was about 2 percent.

Changes in Family Status

The most dramatic results pertain to changes in family status, with the effects of becoming a lone parent the greatest, especially for women.

The most dramatic results pertain, not surprisingly, to changes in family status, with the effects of becoming a lone parent the greatest, especially for women. Specifically, becoming a single parent (see the "to lone parent" row in Table 7a) increased the predicted probability of entering low income from 5.8 to 30.4 percent for women who were initially single (the baseline 5.8 percent plus the extra 24.6 percent indicated for that transition), from 2.9 to 34.8 percent for those who were originally attached and had children, and from 1.7 to 44.1 percent for those who were initially in couples with no children. Conversely (but consistently), a change in family status from lone parenthood to any other category (read down the "lone parent" column, which presents the model results for those who were initially lone parents) decreased the probability of moving into low income.

11 The relatively small differences between the two sets of findings stem largely from the fact that the regression baseline rates represent the specific groups just mentioned, many of which have lower-than-average entry rates, generally driving the rates here somewhat lower than the simple overall transition rates that appear in the earlier table.

Box 6: *The Econometric Models*

In the approach adopted here, each pair of years over which an individual is observed comprises an observation that enters the estimation models, with the dependent variables defined as the probability that a transition occurs from being nonpoor to being poor for the entry models and from being poor to being nonpoor for the exit models, depending on the situation of the person in the first year of the pair of years in question. In each case, the regressors include the individual characteristics and other situational attributes that hold in the first year of each observed pair. The models thus represent a relatively straightforward conditional expectation function of the probability of moving into or out of low income from one year to the next, based on the earlier period attributes. They are estimated in a standard panel logit model framework, with the observations derived from the longitudinal sample stacked over the full period covered by the analysis.

The models were estimated separately for males and females of each family status in order to allow the full model structure to vary along these dimensions. For example, the models reveal the effects of becoming a lone mother on the probability of entering low income for women who were initially single, for women who were initially attached with children, and for women who were attached without children. The same is done for men.

The results are presented in the conventional manner in Finnie (2000), thus including the coefficient estimates and their standard errors and indications of which parameter estimates are statistically significant — that is, significantly different from 0 at the .05 and .01 confidence levels by two-tailed t-tests. The related probability effects shown here were calculated for the transition in question for each equation by first fitting a baseline probability that represents the predicted probability with each of the regressors (all categorical variables) set to the omitted categories. The probabilities were then recalculated with the regressors turned on one at a time, yielding the resulting changes in the estimated probability of the transition associated with each variable.

Having a spouse can thus be seen as the thread by which many women hung out of poverty, revealed here in a much more direct and precise manner than previous static analyses, which have looked only at current marital and poverty status. For men, the effects of becoming a single parent on the probability of moving into low income from one year to the next are also all statistically significant and substantial but not anywhere near as strong as for women.

Becoming single (see the "to single" row in Table 7a) also increased the probability of entering low income in most cases, especially for women. The greatest effect here is for those who were initially attached and had children, for whom the probability of entering low income rose from 2.9 to 16.8 percent. The exception is the case of individuals (male or female) who were lone parents in the initial year and then became single — thus moving from a very high-risk state to one generally not quite as bad.

The birth of a first child (the "to attached with child(ren)" set of effects) had a moderately small influence, in absolute terms, on the probability of entering low income for both individuals who were initially single (who thus married over the period in question) and those who were initially members of childless couples. In the latter case, though, the probability of entering low income was more than twice as likely as for the baseline "no child(ren)" group (1.9 versus 4.2 percent for men and 1.7 versus 4.5 percent for women); that is, having a first child more than doubled the probability of entering poverty for couples. This event is relatively common, though, so

the overall effect of starting a family on entry into low income was significant in terms of the number of individuals involved.[12]

Moving from any other family status to being attached with no children was uniformly associated with declines in the probability of entering low income in a given year.

Moving from any other family status to being attached with no children was uniformly associated with declines in the probability of entering low income in a given year, reflecting the fact that this move was to the group with the lowest of all poverty rates (both the level rates in any given year and the entry rates) for men and women alike.

Moving back into the parental home ("to filing child") generally appears to have represented a form of economic refuge, with this dynamic associated with significant declines in the probability of entering low income for singles and lone parents (although not significantly so for the latter).

Interestingly, being married in both periods but changing spouses over the relevant interval ("new spouse") was associated with considerably higher rates of entering low income than remaining with the same partner, especially when children were present. These effects are approximately twice as strong for females as males — the former had a probability of 19.3 percent of entering poverty compared with the 2.9 percent for the baseline (same spouse) group. This result seems counter to any notion that individuals typically change spouses at least partly for economic reasons (but see the discussion of exit rates below).

The effects of the number of children in the household were generally (but not uniformly) monotonically positive, but although most were statistically significant, they were not particularly strong except for very large families. The exception is the case of single mothers, for whom the effects of each additional child were rather substantial, a result that does not hold for single fathers.

Age Effects

The differences in entry rates by age are mostly statistically significant but fairly small, especially compared to the family-status effects just discussed. It is, however, interesting to note the substantially higher rates of entry for the youngest group (ages 20 to 29) of individuals with children, these effects being especially strong for single mothers, for whom the estimated entry rates were almost three times those of the baseline ("prime") group: 21.9 percent versus 8.2 percent. The proportional effects are almost as strong for couples with children, but from much lower baseline probabilities, with the youngest group having a predicted rate of 4.9 percent, rather than 2.4 percent, in the case of males and 6.2 percent, rather than 2.9 percent, in the case of females. These results have potentially important implications, especially given the evidence of significant duration and occurrence dependence (reported below), since the high rates of entry among the younger groups may have influences on these individuals' low-income experiences for many years to come.

12 The effects of the child may have been simply to increase the family's measured needs, thus driving adjusted income down, or they may have included income changes, such as those associated with one spouse's (typically the woman's) cutting back on labor market participation.

Province, Language, and Area Size Effects

Everywhere but Newfoundland, the effects of the province of residence are quite small, except for single parents. The results for this group are, however, somewhat surprising. For lone mothers, in particular, the coefficient estimates are uniformly significantly negative, meaning that, with other factors held constant, the rates of entry into poverty were higher in Ontario, the omitted category against which the other province effects are compared. This finding seems to indicate that the social assistance system in Ontario, the wealthiest province and one with a generally strong labor market, was significantly less effective at preventing single mothers from falling into poverty than was the case in other jurisdictions.[13]

Moving from one province to another ("mover") was fairly strongly associated with entry into low income for individuals of most family types, particularly lone parents. This finding is especially interesting — and to some degree puzzling — in the context of some of this author's other work, which has generally found that moving has strongly positive effects on the earning of individuals, at least men, as well as the corresponding exit effects reported below. On the other hand, a number of explanations for these differences are possible. The direction of causality may also be suspect here, with individuals who come up against difficult economic circumstances in a given year perhaps being more likely to move as a result of their difficulties. (See Finnie 2000 for further discussion.)

The estimated minority-language effects are mostly rather small, although the generally higher entry rates for anglophones in Quebec are noteworthy.

The clearest results regarding the size of the area of residence were that individuals in rural areas had distinctly higher probabilities of entering poverty in a given year and that a fairly strong and more general inverse relationship held between area size and the probability of entering low income for lone mothers. The latter result may reflect a reduced availability of the services, program, and labor market institutions geared to this group in smaller cities, towns, and the countryside, as compared with the larger urban areas.

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Calendar Year Effects

The only substantial calendar year effects point to lone parents' experiencing a significant increase in the rate of entering poverty over the period covered by the analysis — despite the fact that it was a period of economic recovery, albeit a rather sluggish and uneven one through 1996 (the last year covered by the data). This deterioration presumably reflected the degree to which single parents were largely disconnected from the labor market, as well as the period's implementation of decreases in social assistance payments, UI/EI, and other government services and transfers on which these families are so dependent.

13 These results do not, however, explicitly identify the separate influences of labor market outcomes and transfers on entry into low income, and potential composition effects might have been at play as well (for example, individuals who had exited poverty and were therefore susceptible to re-entry into it in any given year may have comprised a rather different group in Ontario).

These time trends, even though estimated over a fairly short period, were, in some cases, fairly substantial and potentially of long-term consequence. For example, the predicted rate of entry into low income for single mothers rose from 8.2 percent for the baseline 1992-to-1993 transitions to 12.5 percent and 11.2 percent for the 1994-to-1995 and 1995-to-1996 intervals, respectively. If these changes represent a longer-term shift or if the trend has risen even further still — which seems quite possible in the face of continued spending cuts — higher poverty rates should be expected in the future as these extra entrants join the stock of the current low-income population at faster rates than before.

The Annual Exit Models

The results for the annual exit models are shown in Table 7b. The baseline probabilities represent individuals with the same characteristics as those of the baselines in Table 7a's entry models: no change in family status over the period, one child (where relevant); age 40 to 49; English-speaking resident of Ontario living in a large urban area who did not move to another province; and the 1992-to-1993 period.

The baseline results again line up quite well with the simple transition rates seen earlier (Table 3). When other factors are controlled, the annual exit rates are highest for attached individuals and lowest for singles and lone parents.

Family Status

For individuals initially in this status (single motherhood), any change in family status was associated with a large increase in the probability of exiting poverty.

The initial focus is once again on the family status effects and, once more, the strongest and most important of these pertain to lone mothers. For individuals initially in this status (see the "lone parent" column for women), *any* change in family status was associated with a large increase in the probability of exiting poverty (relative to the omitted group representing those who remained single mothers). Becoming attached with children (that is, marrying) increased the predicted exit rate from 29.3 to 84.1 percent, the increase was even greater for those who became attached but no longer had children, stronger yet for those who became a filing child, and also quite significant for those who became completely on their own (with no partner and/or children and were not back in their family's home). The effects for single fathers are of the same general type but not as strong (except for the very small group who became filing children).

On the other side of this particular family status dynamic, *becoming* a lone parent (see the "to lone parent" row) was associated with strongly negative effects on the probability of exiting low income (except for a statistically nonsignificant effect for males who were originally in childless couples — a rare dynamic). For women, the probabilities of exiting low income were also generally lower for those who moved from some other status to become lone mothers than they were for those who were lone mothers to start with, again indicating that the precise point of entry into single parenthood generally represents a particularly difficult period — a sharp cusp point — for women.

Effects similar to those for lone parents held for individuals who were single in the initial year; becoming attached (with or without children) or becoming a filing child

was strongly associated with exiting low income. The effects were again stronger for women than men except for the filing child case. These results reflect the fact that such individuals were moving from a family status (single) for which poverty rates are generally high to ones where it is much lower.

An important difference for those with single status relative to those with lone parenthood status, however, is that, for those who were already poor individuals, especially men, becoming single had positive effects on the probability of leaving low income. The exit rate was, for example, 27.7 percent for men in childless couples who remained in that state but 43.8 percent for those who became single, while the analogous rates were 36.5 and 47.7 percent for those initially in couples with children. In short, no longer being in a relationship appears to be have been associated with escaping poverty, especially for men but also for women.[14]

No longer being in a relationship appears to be have been associated with escaping poverty, especially for men but also for women.

A change in spouse for individuals who remained married was also related to much higher probabilities of leaving low income, a result that is especially interesting since we previously saw that spouse-changing was positively related to *entry into* low income. That is, it seems to have been a positive influence on both entering and leaving low income. Here, though, it is consistent with the preceding result that ending a relationship to become unattached increased exit rates.

A change from being attached with children to being attached with *no* children had a positive effect on exiting low income; presumably, the typical situation was that of children's leaving home with the family's income needs thus diminished.

The effects of the *number* of children represent the mirror image of those observed for the entry models discussed above. Exit rates generally declined with the number of children, pointing to longer-run poverty among larger families. The effects here are, however, typically about as strong for couples as for single parents, which was not the case for the entry models.

Age Effects

Younger singles and childless couples (those ages 20–29 and 30–39) are the family types that most depend on earned income and are at the point in the life cycle most strongly characterized by upward earnings mobility (see Finnie 1997b; 1997c; 1997d;], Finnie and Gray 1998; Beach and Finnie 1998). Not surprisingly, therefore, these individuals had considerably higher probabilities of exiting low income on an annual basis than did prime-age individuals (ages 40–49) of the same family types. Furthermore, putting these results together with the higher entry rates for the younger age groups (see Table 7a) points to a generally more volatile situation for these younger individuals — that is, higher rates of both entry into and exit from low income. Older singles and couples (ages 60–69 and 70 and over) were, however, also more likely to exit poverty than individuals in the middle-aged group, presumably reflecting the effectiveness of public and private pension programs and other government transfers in helping these groups.

For couples with children and single parents, on the other hand, the younger groups had *lower* rates of leaving low income than the corresponding prime-age groups (and others), presumably reflecting a combination of reduced labor market

14 See the author's earlier work on divorce and child support (Finnie 1993; 1995) for further discussion of the relevant issues.

opportunities and the limited effectiveness of the social assistance and related transfer program on which these groups often depend. Note that young couples with children thus had both higher rates of entering low income and lower rates of leaving than did older ones — more poverty stemming from both sides of the underlying dynamics.

Province, Language, and Area Size Effects

Exit rates across most provinces were — not unexpectedly given the differences in underlying economic performance — significantly lower than for baseline Ontario, with only Alberta showing a more mixed pattern. The magnitudes of these effects are in many cases, quite large, with five to ten and even larger percentage-point effects shifting the baseline exit rates down by a quarter, a third, or even more (compare the effects with the baseline probabilities in the first row of Table 7b).

Moving from one province to another had rather mixed effects, but the strongly positive influence it had on exiting low income for single men is perfectly consistent with related analyses of the effects of interprovincial mobility on individuals' earnings, which are estimated to be strongly positive for young single males (Finnie 1998a; 1998b). The strong negative effects of interprovincial mobility on exiting low income for lone mothers seems to merit further study; for example, did moving tend to drive these women into poverty, or did they move *after* tumbling into straitened circumstances?[15]

Most of the minority-language effects are not individually statistically significant, but unattached anglophones in Quebec generally exited poverty at slightly higher rates than their francophone compatriots, perhaps due to the former's enhanced sets of options to move out of the province. In contrast, anglophone couples with children and lone mothers did worse than the majority francophones, while francophones in the rest of the country did worse than their anglophone neighbors, perhaps reflecting a diminished availability or effectiveness of related services, more limited job market opportunities, various selection processes, or other factors (Finnie 2000).

The clearest effect with respect to the size of area of residence is that exit rates are, in most cases, significantly lower in rural areas (the mirror image of the entry rate patterns) and especially so for lone parents. The underlying factors once again presumably include different labor market structures, the reduced availability of services, social isolation, and so on. For some other groups, though – in particular, couples with and (especially) without children — exit rates were higher in the smaller urban areas and towns than in the large urban centers (the omitted category).

The effects of the year of observation point to clear improvements over time for one group of individuals — attached men with no children — versus more neutral or negative trends for all other sex-family categories.

Calendar Year Effects

Finally, the effects of the year of observation point to clear improvements over time for one group of individuals — attached men with no children — versus more neutral or negative trends for all other sex-family categories.[16] The greatest deterioration was again for attached couples with children and, especially, single parents, with the exit

15 Recall mobility's very strong positive effects on *entry* for single mothers as well; interprovincial mobility seems to be a connected set of dynamics for this group. See Finnie (2000) for further discussion of these effects.

16 The fact that the one positive effect did not also hold for women suggests that it was largely confined to older men, for reasons related to the sample representation discussed earlier.

rates of the latter group generally falling from 5 to 7 percentage points on baseline levels of just under 30 percent for the 1992-to-1993 reference interval — thus indicating relative decreases in the 20-percent range in the rate of exiting poverty.

Lower exit rates presumably were the result of major cutbacks in social assistance, UI/EI coverage and benefits, and other transfer programs, which were not sufficiently offset by positive earnings effects associated with the Canadian economy's rather soft recovery over this period.

The source of these trends was presumably the major cutbacks in social assistance, UI/EI coverage and benefits, and other transfer programs, which were not sufficiently offset by any positive earnings effects associated with the rather soft recovery that characterized the Canadian economy over this period. The net effects of the maintenance of those cuts, along with additional reductions on a smaller scale versus the stronger economic recovery, render rather difficult any assessment of how the situation has evolved over the more recent period and one that only further empirical analysis will be able to resolve.

The Hazard Models: Duration Effects

This section of the *Commentary* employs a hazard model framework to estimate the rates at which individuals (1) exited current low-income spells on a year-by-year basis from the point of entry, and (2) re-entered another spell of low income after a previous exit. These models thus permit one to estimate the underlying duration effects — the relationship between the amount of time already spent in (or out of) low income and the probability of exiting (or re-entering) in a given year — which comprise interesting, important, and policy-relevant aspects of the low-income dynamic. (See Box 7 for more details regarding the structure of these models.)

The findings are again presented in the more accessible probability framework and only the baseline probability, duration term, and year effects are shown here, as the results for the other variables generally resemble those for the annual entry and exit models seen above. (See Finnie 2000 for a more complete set of findings and the full regression model parameter estimates.)

The Hazard Exit Models

The samples used in the hazard models differ from those employed in the annual exit models in that the hazard models include only observations for which the *start* of the low-income spell occurred over the 1992–96 sample period. In particular, individuals who were continually in low income over the sample period were excluded from the estimation samples.[17] As a result, the baseline exit probabilities reported in Table 8a are considerably higher than those in the annual exit models above, where the most chronically poor are included. Both sets of results are meaningful and simply represent different perspectives of the low-income exit dynamic: the hazard model results represent the probability of leaving low income at each point in time over a given spell for a *representative sample of low-income spells* (as generated by the procedure of selecting all observations related to spells that began over the 1992–96 period), while the annual models represent the exit rates for the *representative "stock" of individuals in low income in a given year*. (Such reasoning applies to the other parameter estimates as well.)

17 Such spells are "left-censored" (see note 10). Observations associated with "right-censored" spells are, in contrast, included in the estimation up to the relevant point. All this is standard with the hazard approach.

Box 7: *The Exit and Re-entry Hazard Models*

The estimation approach adopted here, which is consistent with standard hazard model methods, consists of first identifying the beginning of any low-income spell observed for a given individual over the 1992–96 period covered by the data (as was done in the calculation of the empirical hazard rates — see Tables 4a and 4b). The probability of exiting that state from one year to the next over the course of that spell is then estimated as a function of the various time-varying personal characteristics and situational attributes included in the annual exit models (Table 7b) *plus* the elapsed time spent in the spell to date, captured by a series of dummy variables indicating the current spell length in years. In effect, once the event-based samples are constructed (that is, when they include only observations related to spells where the entry into poverty is observed), the models much resemble those that were used in the annual exit models (including their logit form) except that the duration terms are now added to the specification. The approach thus represents a hazard model specification that corresponds to the annual nature of the data and allows for the inclusion of time-varying covariates and a very flexible form for the duration dependence terms.[a]

A similar approach is used to estimate the probability of re-entering low income after an individual has completed a previous spell, with the duration effects in this case corresponding to the elapsed time spent out of low income since the previous exit (see Tables 4c and 4d). The models thus estimate the evolution of the probability of falling back into low income over the time spent out of that state after a previous episode.

No effort is made to separate the effects of unobserved heterogeneity and state dependence ("pure" duration effects) with respect to the duration terms in these models, using the methods suggested by Heckman and Singer (1984), largely because such procedures are very cumbersome and rely on untestable hypotheses regarding the general structure and specific stochastic properties of the underlying distributions.

a This general approach is used by Huff-Stevens (1994; 1995) to analyze poverty dynamics, by Gunderson and Melino (1990) to model strike durations, and by Ham and Rae (1987) to analyze jobless durations, while Keifer (1990) shows that the likelihood function for this model corresponds to that of the standard logit model specification.

The key duration terms generated by the hazard exit models indicate how the probability of exiting low income shifted with the number of years spent in that state. The probability of exit in a given year declined substantially with the length of time the person spent in that state, the probabilities declining 16 to 27 percentage points after four years across the various groups. In relative terms, the rate at which individuals exited low income fell 40 to 57 percent compared with the baseline rates, which represent exit rates after just one year.[18] These effects are large by any standard.

The fact that the magnitudes of the duration effects are roughly the same across the various models implies that the rate of exiting low income dropped to a similar degree

18 More specifically, the probability of exiting low income in a given year fell from a baseline rate of 34.2 to 17.5 percent after four years in the case of single men (holding other factors constant), from 48.8 to 27.7 percent for attached men with children, from 43.8 to 24.3 percent for attached men with no children, and from 38.2 to 19.2 percent for single fathers. For women, the results were qualitatively similar, with exit rates falling from 34.3 to 14.9 percent for singles, from 53.2 to 32.1 percent for those attached with children, from 54.9 to 28.3 percent for those attached without children, and from 42.0 to 24.2 percent for single mothers. The declines in the exit rates after four years were, therefore, in percentage terms: 49.3, 43.2, 44.5, and 48.2 percent for the four male groups (in the order shown in Table 8a), and 56.5, 39.7, 48.5, and 42.4 percent for the female groups.

over the course of a given spell for the different age and family-type groups — an interesting and important finding. It also means that exit rates did not generally "cross"; the groups that had higher (or lower) rates of exiting poverty after one year generally had higher (or lower) exit rates after a greater number of years as well.

The specific pattern of the duration effects is also interesting, with the hazard rates generally declining quite steeply at first but then largely flattening out by the final year, suggesting that the probability of exiting poverty declines most rapidly over the first few years of a spell and then remains at a more or less constant annual rate. The five years of LAD data used here thus appear to provide a good indication of the full shape of the relevant hazard profiles over time — a fortunate outcome in analytical terms.

The probability of exiting poverty declines most rapidly over the first few years of a spell and then remains at a more or less constant annual rate.

In summary, these findings suggest that a given low income spell is likely to either end quite quickly or, once it has lasted a few years, continue for a relatively longer period of time. (This result is especially true for individuals from certain provinces and with certain other low-exit-rate characteristics as indicated by the annual exit model results seen above and seen more precisely in the complete hazard model results reported in Finnie 2000.) Predictions of the amount of future time an individual is likely to spend in low income could thus be usefully based on the elapsed time of the current spell (along with other personal and situational attributes).[19]

The calendar year effects largely correspond to those already seen for the annual exit models except that the exit rates drop off even more sharply for single mothers — 10.5 points on a baseline of 42 percent, a decline of a full 25 percent over the short period from 1993 through 1996. The expected length of a new poverty spell thus increased especially sharply for single mothers over the 1992–96 period.

The Re-entry Models

The baseline probability, duration, and year effects for the hazard re-entry model are reported in Table 8b. As with the exit models, the baseline rates differ substantially from those of the annual entry rate models, again primarily due to the differences in the samples used in the two approaches. More specifically, the re-entry rates here are much higher than the more general annual entry rates seen above, reflecting the fact that those who had already experienced a low-income spell over the period covered by the data were more likely to begin another spell than was the general population of nonpoor individuals in a given year.

The extent of these baseline differences is itself interesting as it begins to give us an idea of the importance of occurrence dependence (as opposed to the duration dependence focused on in these hazard specifications) — a topic pursued further below. Thus, the annual entry models previously seen had baseline rates ranging from under 2 percent to about 8 percent, whereas the hazard specifications seen here generate rates that vary between 18 and 36 percent. In short, entering low income in a given year was at least several times more likely for individuals who had just completed a spell than for the general population.

As in the exit models, the duration terms are strong, here indicating that the rate of re-entering low income declines significantly with the number of years spent out of that

19 The points regarding the contribution of unobserved heterogeneity versus "pure" duration effects to the observed patterns made in Box 5 apply here as well.

state after a previous spell. More specifically, comparisons of the baseline rates (which implicitly represent individuals who had been out of poverty just one year) to those that obtained after three full years spent out of low income indicate that re-entry rates dropped 41 to 59 percent (in relative terms) across the different groups. Also of interest is that the greatest declines again came initially, although the hazard rates still fall to a significant degree from two to three years, suggesting that further declines might be observed were the data more extended.

The extent of the declines of the hazard rates did, however, differ notably by family type, with single parents (especially males) declining the least, with these smaller declines coming on top of baseline re-entry rates that were already the highest.

Finally, the calendar year effects are almost all statistically significant and, in some cases, quite strong (those for attached females with no children are the only clear exception), and pointing to significant increases in the probability of re-entering low income over the period covered by the analysis for most groups. These shifts presumably again reflect the period's cutbacks in social assistance, UI/EI, and other social programs implemented by provincial and federal governments, while also indicating that the underlying economic recovery did not extend to those individuals most at risk of (re-)entering poverty.

The shifts vary in magnitude but were as much as about 10 percentage points for single mothers, thus representing relative increases of more than 44 percent for the 1994-to-1995 period over the 1993-to-1994 period. Therefore, not only did given spells of low income increase in expected length over the sample period (as seen in the exit models, Tables 7b and 8a), but so too did the probability of re-entering a subsequent spell. In short, escaping poverty and then remaining out of that state on any sort of longer-term basis became significantly less common over this short period — obviously a very worrying trend.

For single mothers, escaping poverty and then remaining out of that state on any sort of longer-term basis became significantly less common over the 1993–95 period — obviously a very worrying trend.

Past Poverty Experiences and Current Outcomes

To what degree are current poverty status and entry into poverty related to an individual's past low-income record? This section of the *Commentary* investigates the notion of "occurrence dependence" with two different models. The first is a variant of the annual entry models seen above, but it examines only the 1995-to-1996 interval (the last one covered by the data), and the regressors include the number of years the individual was in low income between 1992 and 1994.[20] The second is a simple logit specification of low-income status in 1996 where the number of years spent in low income during the 1992–95 period enter as explanatory variables.[21] The results are again presented in terms of the related probability effects and are once more restricted to the baseline probabilities and the variables of focus, which are, in this case, the number of previous years in poverty. (The results for the other variables again resemble those of the entry models presented earlier and can be found in Finnie 2000.)

20 To be at risk of *entering* low income in the 1995-to-1996 interval, the individual obviously must have not been in low income in 1995, leaving the low-income record over the preceding three years to be entered as regressors in the model.

21 These are very simple *ad hoc* descriptive models. See Finnie (2000) for further discussion.

Past Low-Income Experiences and Current Entry into Low Income

The findings for the 1995-to-1996 entry models are shown in Table 9a. The baseline hazards are generally lower than those found in the general annual entry models. This is principally because — in the context of the 1995-to-1996 entry dynamic being modeled and the presence of the poverty experience regressors included (one, two, and three years) — they implicitly represent the situation for individuals with *no* previous low-income spells over the observed interval, as well as all other particularities of the specific 1995-to-1996 period, including, for example, the general shifts in entry rates indicated in the relevant calendar year variables included in the earlier specifications.

With respect to the past poverty variables, the results show the anticipated strong relationship between the number of years previously spent in low income and the probability of entering low income between 1995 and 1996 (obviously, *re-entering* for individuals who had previous spells).

Thus, for individuals who were never in low income during 1992, 1993, or 1994 (and otherwise possessed the models' baseline characteristics), the probability of entering low income between 1995 and 1996 was 1.4 to 9.1 percent, depending on the particular family type and sex, whereas for those who were in low income all three of the earlier years (but were not poor in 1995), entry rates ranged from 20.6 to 46.8 percent. Across the various groups, the entry rates of the "ever poor" ranged from five to fifteen times those of the "never poor," with the smallest differences being for the lone-parent families, which had relatively high entry rates to begin with.

Individuals' past low-income records are powerful predictors of the probability of entering poverty in a given year and may thus be very useful for precisely targeting anti-entry policy efforts.

Individuals' past low-income records are, therefore, powerful predictors of the probability of entering poverty in a given year and may thus be very useful for precisely targeting anti-entry policy efforts. For example, while single mothers with no previous low-income spells over the period in question had a relatively high entry rate of 9.1 percent, it was actually lower than the rates of individuals from all other sex-family types who had as little as a single previous year in low income (attached men with children excepted) and only a third as high as those of any of the other groups of individuals who had already had three years of low income. That is, while lone mothers are a problem group in general, looking at recent poverty experiences would allow the identification of individuals of other types who are actually more at risk of entering poverty in a given year. Anti-poverty measures could be directed appropriately.

Past Low-Income Experiences and Current Low-Income Status

The relationship between an individual's past low-income record and his or her current low-income *status* (poor versus nonpoor) is shown in Table 9b. The effects of previous years spent in low income are even stronger here than in the entry models just seen (Table 9a), primarily because those other models were necessarily estimated for individuals not in low-income in 1995, thereby excluding those with the most chronic low-income profiles. Thus, whereas the baseline low-income rates in Table 9b vary from 1.5 to 10.7 percent, effectively representing the relevant poverty rates of individuals with no previous years of low income, they immediately jump to between 17 percent

(the rounded result of adding the 1.51 percent baseline and the 16.16 percent shown for attached men) and 35 percent for individuals with one previous year of low income and continue to rise with additional years spent in low income, soaring as high as 75 to 90 percent for those who were in low income all four previous years.

The general result is again that individuals' past low-income records are powerful predictors of their future low-income status. And once again, this finding is interesting not only from a purely descriptive perspective but also for targeting policy at reducing poverty rates and alleviating the burden experienced by those who enter the state.

Policy Implications

As the first general analysis of poverty dynamics in Canada, these findings have a wide range of policy implications, large and small, broad and specific. A few important general ones are discussed here, along with some suggestions for future research.[22]

Poverty Dynamics: Who Are the Poor?

With almost half of those who experienced a spell of poverty over the five years covered by the analysis having been in that state more than half the time and hence classified here as being long-run poor, this study shows the existence of a very sizable group for whom policy measures should provide assistance of a rather fundamental nature, such as developing essential labor market skills, making work a more feasible option (for example, by facilitating child care), helping with job search, and providing longer-term income support until individuals get on their feet.

Furthermore, with just 5.9 percent of the general population in low income in all the years studied but with this group comprising approximately 40 percent of the low-income population in any year,[23] the analysis makes clear that any truly significant reduction in low-income rates would have to include a focus on the chronically poor and presumably involve the sorts of concentrated measures just mentioned — as opposed to simple stop-gap or short-run interventions.

The benefits of any success in helping the long-run poor would clearly be large and lasting in purely economic and financial terms as well as from any social justice point of view.

From a more positive perspective, while the long-run poor are surely the most difficult cases — the protracted nature of their poverty experiences presumably stem precisely from the deep nature of their problems — they also represent the greatest potential policy payoff in that improving the lot of this relatively small group would lead to greatly reduced poverty rates on a more-or-less permanent basis. To put the point another way, even if the underlying problems of the long-run poor are the most challenging and costly from a policy perspective, the benefits of any success in helping these people would clearly be large and lasting in purely economic and financial terms as well as from any social justice point of view.

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22 In a forthcoming *Commentary*, John Richards and I will explore policy issues in more depth, including a review of recent policy developments across the country and an attempt to identify what works, what does not, and where future initiatives should go.

23 The figures rise to 9.5 percent of the total population representing 59 percent of the poor in any year when those who were poor four years out of the five studied are included, and 13.4 percent of the population representing 75 percent of the poor when those who were poor three of the four years are considered as well.

On the other hand, the analysis has also shown that, in addition to these long-term hard-core poor, there is another substantial group — the other half of those who were ever poor — for whom poverty is more of a passing experience. For them, less fundamental poverty-fighting measures, such as short-term income support, the retooling of existing job skills, a little extra help with job search, and the like, would probably be more appropriate.

Different Types of Poor Policy Initiatives

This dichotomy of poverty types (it is really more of a continuum but it is usefully thought of in terms of the binary classification adopted here) raises the issue of how these two basic classes of individuals — the longer-run and "dependent" poor versus the more passing and "independent poor" — can be identified so that the different sorts of policy measures just described can be efficiently targeted as soon as possible. The findings presented here again provide a useful guide.

First, the analysis of entry, exit, and re-entry rates has identified a number of observable personal characteristics and situational attributes that represent good indicators of who is likely to enter poverty and the amount of time a person will spend in a current or subsequent poverty spell should that occur. Sex, family status, age, province, language, and area size of residence could, therefore, be usefully employed to classify individuals in terms of the policy initiatives that would be most appropriate to their specific cases. (Other analyses of the LAD database or other sources could probably provide additional information of this type.)

The results also point to the powerful nature of the amount of time an individual has spent in a current poverty spell or has remained nonpoor after a previous exit (the relevant duration effects) as well as the overall number of years recently spent in poverty (the occurrence effects) for predicting an individual's poverty status at any point in time, the probable length of a given poverty spell, and the likelihood of entering another period of low-income. In short, individuals' current and past poverty records could also be helpful for targeting policy measures. Provincial social assistance agencies could, for example, focus their greatest attention on individuals who have a track record of previous low-income spells, who are well into a current spell, or who have only recently escaped a spell — especially if they possess other attributes that tend to be associated with more and longer periods of time below the poverty threshold.[24]

Provincial social assistance agencies could focus their greatest attention on individuals who have a track record of previous low-income spells, who are well into a current spell, or who have only recently escaped a spell.

The Need for Early Interventions

A further implication of the analysis stems from the findings that the rate of exiting poverty tends to decline substantially with the amount of time a person has spent in a current poverty spell and that the rate of re-entry similarly decreases with the amount of time an individual has spent out of poverty after an exit. These results point to the importance of early interventions for speeding people out of poverty once they have entered it and for preventing re-entry once they do manage to escape.

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24 The experiments in getting single mothers off welfare and into work recently carried out in New Brunswick and British Columbia employ criteria of this type with respect to individuals' past welfare records.

That is, while the relative importance of unobserved heterogeneity versus pure duration effects might be debated and investigated further, the face value of the empirical evidence presented here indicates that individuals get increasingly entrenched in poverty; thus, early interventions before this occurs are likely to be very important and worthwhile, and extra effort at keeping individuals out of poverty in the first year or two after exiting a spell would be similarly appropriate.

The Special Case of Single Mothers

On a slightly different track, this study has also identified certain specific *events*, rather than personal or situational attributes, that are associated with high rates of entry or re-entry into poverty or low rates of exit from that state and that thus point to other sorts of policy initiatives. Lone motherhood is perhaps the best example in this regard. The evidence reported here on the high incidence of entering poverty at the point of becoming a lone mother, the relatively long poverty spells experienced by these women, the importance of marriage to their leaving poverty, and their high rates of re-entering poverty after a previous exit render much more explicit and precise what cross-sectional studies have previously only been able to intimate in an extremely blunt manner about the poverty experiences of lone mothers. This *Commentary* thus reaffirms the need for antipoverty policy to focus attention on this group — but now from a much more informed perspective.

Child support payments have undoubtedly risen since the period covered by this study (thanks to the introduction of guidelines in 1997), and the generally strong labor market since 1996 may have been of some help (although the data provide little support for this proposition). However, the fundamental problems are that women typically earn less than men but have the primary responsibility for the custody of the children in cases of marital breakup and that the generally even more vulnerable never-married group is growing in size and doing worse than ever. Only longer-run initiatives that address these underlying factors are, therefore, likely to make a substantial difference in single mothers' poverty experiences over the longer run. Restoring public sources of income in the form of "old fashioned" social assistance or through newer and sometimes more creatively innovative welfare-to-work programs, would, however, almost certainly be needed to provide the support necessary to deliver and keep single mothers and their children out of poverty in the nearer term.

Women typically earn less than men but have the primary responsibility for the custody of the children in cases of marital breakup, and the generally even more vulnerable never-married group is growing in size and doing worse than ever.

On the other hand, the analysis has also shown that most of the poor in any given year of study — and the vast majority of the long-run poor (83 to 85 percent) — are *not* single mothers. Unattached individuals are the largest single group and couples represent another substantial part, so policy initiatives clearly need to be directed at these other groups if overall poverty rates, including those for the most chronic sufferers, are to be reduced significantly.[25]

25 The relatively small share of the overall poverty population made up of single mothers is a finding that surprises many Americans. In the United States, poverty rates for single mothers are even higher, largely because of the existence there of an entire subculture in which women go through motherhood in the complete absence of a spousal partner, a phenomenon that is still relatively new in Canada. One wonders how much of the recent focus on single mothers in Canada is borrowed from the US scene without sufficient thought as to its appropriateness.

Carrots, Sticks, and a Strong Economy

What sorts of measures should be adopted to help the longer-run poor? Without getting into detailed specifics (which will be addressed in a follow-up paper), it is worth noting that both common sense and the available empirical evidence (see Blank 2000a regarding the US record and Blank 2000b for a more Canadian perspective) indicate that successful antipoverty programs typically consist of three fundamental elements: carrots, sticks, and a strong labor market.

Typically, the carrots should include, on the one hand, opportunities for developing marketable skills, learning about job search, and making work feasible and worthwhile through the provision of child care, help with transportation, aid in the purchase of the necessary clothes, assistance with other work-related costs, and so on. It is equally important, however, to improve the financial incentives to work, typically by allowing welfare recipients to keep a greater share of their benefits as their labor market earnings rise, providing direct wage subsidies, increasing earned-income tax credits, and so on.

"Sticks" — a disagreeable but perhaps useful term if employed only to represent certain incentive structures coming from the other side — also appear to play an important role. That is, individuals can be encouraged to take full advantage of the opportunities provided, such as those just mentioned, with carefully designed benefit structures. These might take the form of providing extra benefits as an additional incentive to take advantage of a set of opportunities being offered and withdrawing those benefits if they are not acted on, or perhaps reducing the set of benefits for those who refuse, for no good reason, to participate in the programs available. The point is not to wield a malevolent club over some of society's most disadvantaged members but rather to help prod those who have lost (or never learned) the ability, willingness, or hope required to better their lives into participating in the programs that offer — on a good day — the promise of improving their lot in life.

The point is not to wield a malevolent club over some of society's most disadvantaged members.

Finally, a strong labor market is the tide that can float many frail craft. In short, the jobs have to exist if individuals are to make it into the economic mainstream and stay there, and to prevent one person's success from simply displacing another downward.

Identifying Some Specific Initiatives

Some specific program initiatives could include, at the provincial level, a general shift away from traditional welfare programs, which provide income support and little else, toward the sort of proactive initiatives intended to bring individuals into the labor market with real career opportunities.

The federal government could, furthermore, selectively borrow certain elements from the bold experiment in welfare reform instituted in the United States in 1996 by providing additional funds to the provinces to be spent on programs of their own choosing as long as they met the broad goals of increasing the labor market participation of welfare recipients. It could perhaps craft a "kinder, gentler" variant of this sort of initiative for Canada by including individuals' income levels (or poverty rates) as another element by which the provinces' performance would be judged and money allocated in the future. Such an initiative would not only direct more funds toward the sorts of programs that should increase both work *and* — in contrast to certain workfare programs — the economic well-being of those at the bottom end of the

income distribution, but also generate a panoply of programs across the country that should allow each province's unique needs to be met in the best manner possible while generating evidence on which programs work best.

Proactive programs are more costly than traditional social assistance programs in the short run. However, they should be seen as investments that hold the promise of large long-run payoffs.

Such proactive programs are, in fact, more costly than traditional social assistance programs in the short run. However, they should be seen as investments that hold the promise of large long-run payoffs if individuals can be made less dependent on cash handouts and are able to move into the economic mainstream and gradually climb up the socio-economic ladder as their initial, supported footholds gradually lead to better jobs, higher earnings, and economic independence.

Such programs, furthermore, might have additional long-run benefits as the next generation of potential welfare dependants learns that, ultimately, individuals will be expected to work and will be given the incentives and opportunities to do so, and that they might as well move in that direction sooner rather than later, *before* becoming sucked into the welfare system. Even longer-term benefits should be realized as the children of welfare families experience their parents' developing work skills, moving into the labor market, and having higher incomes as a result, and thus also learn about the nature and value of work rather than a life of welfare dependency.

At the federal level, additional funds could be transferred into tax-based "pro-work" initiatives such as the recently expanded National Child Tax Benefit, which provides a refundable tax credit that assists low-income workers with what essentially amounts to wage subsidies. The effects of such an initiative need, however, to be analyzed more fully. In particular, while the program should have an unambiguously positive effect on getting individuals *into* the labor market, the effects of its relatively high taxback rates on the work efforts of those already in the labor market need to be assessed. The effects of using the tax system to deliver payments, usually resulting in a delay in delivery until year-end, also needs to be studied.[26]

Beginning at the Beginning

Yet while initiatives of the type just mentioned are likely to help many individuals, preventative measures aimed at reducing the number of people in straitened circumstances in the first place is almost surely the most efficacious policy route of all. Such measures could, on the one hand, be targeted on the more proximate causes of entry into long-term poverty; an example would be using family counseling and other proactive programs to reduce the number of young single mothers who are unable to support themselves. At the same time, broader and even more basic measures might also be implemented, such as trying to ensure that as many individuals as possible enter adulthood possessing the skills required to build a meaningful career and thus support themselves and their families. Associated initiatives should probably extend back to early childhood and even before, since the first years of life are where many of the most basic problems seem to originate. Making sure every child is well fed, adequately sheltered, and physically safe would, therefore, be a good starting point; following immediately should be the provision of a rich developmental environment,

26 Somewhat surprisingly, US research has found that delayed payments of this type have certain benefits in that individuals have the opportunity to make substantial investments instead of spending the money on day-to-day needs.

including an excellent school system, from the proverbial cradle through entry into adulthood. Even those who blame the parents of disadvantaged children and fear the adverse incentives that can be generated by the provision of assistance to low-income individuals would surely see the benefits — and simple fairness — of ensuring the youngest members of society a reasonable set of opportunities to achieve a decent quality of life and to stay out of poverty in the years to come.

Province, Area Size, and Language Effects

Another implication of these findings derives from the provincial differences in poverty dynamics identified here, these presumably pointing to the need for national-level programs. In particular, the significantly lower rates of exiting poverty for individuals in certain provinces, especially those of Atlantic Canada and the Prairies, point to higher numbers of longer-term poor requiring special measures in those jurisdictions. The fact that lone mothers tend to be particularly characterized by such differences is especially worth noting.

Regarding the minority language effects, the analysis has pointed to the potential benefit of implementing special initiatives in this respect for anglophones living in Quebec as well as francophones in the rest of Canada.

The substantial effects of living in a rural area — generally lower exit rates but also higher entry rates (in the case of lone mothers in particular) — suggest that a focus along this dimension would be appropriate as well. In other cases, large urban areas are also identified as problem areas.

The Time Trends

A final broad policy implication stems from the observed deterioration of the situation for the most dependent groups — couples with children and lone parents — over the 1992–96 interval studied, despite the economic recovery that began and then gathered force during this time. This dynamic points to the underlying dependency of these groups on government sources for direct income support and their vulnerability to the cutbacks that were implemented over this period and that, in many cases, continued in subsequent years. It also indicates that a strong economy alone is not likely to be sufficient to raise these most vulnerable groups out of their straitened circumstances and that other interventions are required.

An additional contribution of the dynamic analysis focusing on entry, exit, and re-entry rates presented here is that it points to a significant deterioration of the longer-run poverty situation in a way that cross-sectional (annual) data could not. In particular, the worsening of entry, exit, and re-entry rates for certain groups portends a deterioration of future poverty rates as these effects gradually work their way through the system and slowly but surely drive up the poverty statistics in a way that the more traditional data sources and annual poverty measures would be slow to capture and unable to predict anywhere nearly so well. In providing a more sensitive measure of the underlying dynamics, this analysis provides the opportunity for addressing the associated problems before poverty rates rise too high or the longer-run poor get too stuck in their disadvantaged situations.

Parting Comments: Future Research

This is the first general analysis of poverty dynamics and future research could go in any number of useful directions. A few suggestions are offered here.

- Study further the records of individuals with specific patterns of low-income dynamics, especially the long-run poor. What, for example, are their different sources of income — earnings, social assistance, and so on — at various points in time? What do their even longer-term profiles look like along various dimensions? What are the precipitous events in their lives (job loss, marital disruption, and so on) or do they tend to be on the economic edge from the beginning?
- In a similar fashion, probe more deeply the poverty dynamics of specific groups, such as lone mothers or younger individuals, whose poverty profiles are generally worse than others' and perhaps deteriorating over time.
- Add additional variables to the analysis, perhaps neighborhood characteristics in particular: levels of education, average incomes, age profiles, immigrant population, and so forth.
- Break down the specific factors that determine movements into and out of poverty. For example, identify the percentage of such movements due to changes in the earnings levels of individuals (head, spouse, others), those due to changes in transfer payments (perhaps even broken down into social assistance, UI/EI benefits, and so on), those due to changes in family status *per se*, and so forth.
- Study social assistance dynamics and their relation to poverty dynamics, perhaps concentrating on long-term recipients and the long-term poor. It would be especially interesting to attempt to analyze the effects of recent welfare reforms on welfare participation rates, poverty status, and income levels more generally. Such studies might reveal which initiatives have really worked in the sense of getting people off welfare and into decent jobs and which appear to have simply punished recipients by cutting benefits.
- Investigate the intergenerational transmission of low-income status and low-income dynamics. Such a study could be facilitated by looking at individuals who are initially (in the earlier years of the data) in their parental families and then observing their situation in later years so as to identify the relationship between childhood income levels (and perhaps neighborhood characteristics) and later low-income profiles.
- Compare the record of immigrants (whose cross-sectional poverty rates have been rising) with that of the general population. Such a study could be facilitated by matching the LAD data with the recently available "IMDB" database.[24]

The author has already embarked on some of these endeavors, while others remain completely open. And many other useful projects could be identified. It is a cliché to say that a particular project has raised more questions than it has answered, but perhaps it can at least be said that this study has provided a useful first view of poverty dynamics in Canada and should constitute a good starting point for future work.

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24 Another recently available tax-based longitudinal file. It captures the entire population of immigrants who have arrived in the country since 1981, but it does not yet contain the sort of family level information that would be required to do such a comparative analysis of low-income dynamics.

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Appendix Tables

Table 1: ***Low-Income Rates by Sex and Family Type, 1992–96 Averages***

	% Who Are Poor	% of All Poor
Males		
Single	25.2	16.1
Attached, with children	10.9	13.7
Attached, with no children	8.2	10.4
Lone parent	31.3	1.3
Filing child	—	0.6
Females		
Single	23.1	19.9
Attached, with children	12.8	16.4
Attached, with no children	5.3	5.2
Lone parent	52.4	15.4
Filing child	—	1.2

Note: Dashes indicate cells with too few observations to report.

Table 2: ***Low-Income Rates by Sex, Age, and Family Type, 1992–96 Averages***

	% Who Are Poor	% of All Poor
Males		
Ages 20–39		
Single	26.0	7.1
Attached, with children	12.3	7.6
Attached, with no children	6.8	1.5
Lone parent	38.5	0.6
Filing child	6.2	1.0
Ages 40–64		
Single	30.4	7.3
Attached, with children	9.5	6.0
Attached, with no children	7.6	4.9
Lone parent	0.6	26.6
Ages 65 and over		
Single	13.3	1.6
Attached, with children	19.4	0.1
Attached, with no children	9.9	4.0
Lone parent	39.6	0.0
Females		
Ages 20–39		
Single	26.8	4.3
Attached, with children	14.4	11.5
Attached, with no children	5.8	1.2
Lone parent	60.1	11.4
Filing child	5.8	0.5
Ages 40–64		
Single	30.1	8.7
Attached, with children	10.0	4.8
Attached, with no children	6.0	3.3
Lone parent	38.0	3.9
Ages 65 and over		
Single	16.7	6.8
Attached, with children	16.1	0.0
Attached, with no children	3.2	0.7
Lone parent	48.8	0.1

Table 3: ***Annual Rates of Entry into and Exit from Low Income by Family-Type Dynamic, 1992–96 Averages***

	Entry		Exit	
	Male	Female	Male	Female
	(% of nonpoor population)		*(% of poor population)*	
Single in first year				
Second-year status				
Single	6.1	4.8	18.7	18.8
Attached, with children	6.3	6.4	50.1	64.5
Attached, with no children	3.3	3.1	63.6	74.9
Lone parent	16.2	30.0	20.5	12.3
Attached, with children in first year				
Second-year status				
Single	12.1	22.6	36.3	33.7
Attached, with children	3.6	4.6	29.9	30.6
Attached, with no children	2.6	2.2	42.7	42.3
Lone parent	17.1	46.9	25.2	13.0
Attached, with no children in first year				
Second-year status				
Single	11.1	15.7	43.4	34.9
Attached, with children	5.3	5.4	30.0	34.2
Attached, with no children	2.6	2.0	34.4	38.9
Lone parent	17.7	47.9	43.8	9.8
Lone parent in first year				
Second-year status				
Single	6.2	7.1	37.3	35.9
Attached, with children	8.4	6.2	47.0	65.6
Attached, with no children	—	—	67.6	75.4
Lone parent	10.0	12.8	18.0	13.5
Filing child in first year				
Second-year status				
Single	29.4	31.4	18.4	17.7
Attached, with children	18.1	21.1	27.8	25.0
Attached, with no children	10.8	8.5	43.4	57.0
Lone parent	40.0	70.3	12.5	6.3

Note: Dashes indicate cells with too few observations to report.

Table 4a: ***Empirical Hazard and Survivor Rates Related to Exiting Poverty, 1993–96 (No Change in Family Type)***

	Hazard Rates for Exiting after				Survivor Rates after			
	One Year	Two Years	Three Years	Four Years	One Year	Two Years	Three Years	Four Years
	(% who leave poverty)				*(% still poor)*			
Males								
Ages 20–39								
Single	36.2	24.6	17.4	15.7	63.8	48.2	39.8	33.6
Attached, with children	46.7	32.7	26.2	25.7	53.3	35.9	26.5	19.7
Attached, with no children	51.7	32.7	27.5	23.1	48.3	32.5	23.6	18.2
Lone parent	30.4	17.7	12.0	12.5	69.6	57.3	50.4	44.1
Ages 40–64								
Single	32.8	21.7	16.7	14.2	67.2	52.6	43.8	37.6
Attached, with children	48.8	34.2	26.5	28.3	51.2	33.7	24.8	17.8
Attached, with no children	47.6	33.9	29.8	26.4	52.4	34.6	24.3	17.9
Lone parent	37.6	25.8	9.5	14.3	62.4	46.3	41.9	35.9
Ages 65 and over								
Single	52.8	32.9	22.2	20.0	47.2	31.7	24.6	19.7
Attached, with children	40.9	31.3	50.0	—	59.1	40.6	20.3	—
Attached, with no children	54.2	49.7	60.6	40.6	45.8	23.0	9.1	5.4
Lone parent	33.3	—	—	—	66.7	—	—	—
Females								
Ages 20–39								
Single	33.9	22.1	16.0	10.7	66.1	51.4	43.2	38.6
Attached, with children	47.0	33.2	25.4	27.1	53.0	35.4	26.4	19.3
Attached, with no children	55.8	41.8	28.9	30.0	44.2	25.7	18.3	12.8
Lone parent	26.8	16.1	10.9	10.9	73.2	61.4	54.7	48.8
Ages 40–64								
Single	33.4	24.5	18.8	15.3	66.6	50.3	40.8	34.6
Attached, with children	51.9	36.2	30.2	23.7	48.1	30.7	21.4	16.3
Attached, with no children	52.9	37.9	31.6	24.3	47.1	29.3	20.0	15.1
Lone parent	33.5	19.1	15.7	12.9	66.5	53.8	45.4	39.5
Ages 65 and over								
Single	53.5	35.6	24.0	15.5	46.5	29.9	22.7	19.2
Attached, with children	44.4	50.0	—	—	55.6	27.8	—	—
Attached, with no children	64.7	39.7	46.2	16.7	35.3	21.3	11.5	9.6
Lone parent	30.0	14.3	—	—	70.0	60.0	—	—

Note: Dashes indicate cells with too few observations to report

Table 4b: ***Empirical Hazard and Survivor Rates Related to Exiting Poverty, 1993–96 (Allowing for Change in Family Type)***

	Hazard Rates for Exiting after				Survivor Rates after			
	One Year	Two Years	Three Years	Four Years	One Year	Two Years	Three Years	Four Years
	(% who leave poverty)				(% still poor)			
Males								
Ages 20–39								
Single	44.2	31.8	25.2	21.5	55.8	38.0	28.4	22.3
Attached, with children	47.2	33.1	26.7	25.6	52.8	35.4	25.9	19.3
Attached, with no children	49.9	31.6	25.7	19.1	50.1	34.3	25.5	20.6
Lone parent	36.8	25.3	19.5	14.3	63.2	47.2	38.0	32.6
Ages 40–64								
Single	36.0	25.2	19.6	17.3	64.0	47.9	38.5	31.9
Attached, with children	49.2	35.1	27.5	26.1	50.8	33.0	23.9	17.7
Attached, with no children	47.8	34.1	29.1	28.1	52.2	34.4	24.4	17.5
Lone parent	42.7	27.2	19.5	20.0	57.3	41.7	33.6	26.9
Ages 65 and over								
Single	53.8	34.4	22.7	25.0	46.2	30.3	23.4	17.6
Attached, with children	46.7	38.1	42.9	—	53.3	33.0	18.9	—
Attached, with no children	55.1	50.5	60.1	42.9	44.9	22.2	8.9	5.1
Lone parent	58.3	50.0	—	—	41.7	20.8	—	—
Females								
Ages 20–39								
Single	44.2	30.7	25.2	21.5	55.8	38.7	28.9	22.7
Attached, with children	45.9	31.9	24.0	25.0	54.1	36.8	28.0	21.0
Attached, with no children	53.6	37.6	23.6	23.8	46.4	28.9	22.1	16.9
Lone parent	33.8	24.1	19.1	19.1	66.2	50.2	40.6	32.9
Ages 40–64								
Single	35.8	26.8	21.8	18.6	64.2	47.0	36.8	29.9
Attached, with children	51.8	36.5	29.7	23.2	48.2	30.6	21.5	16.5
Attached, with no children	53.1	37.7	30.8	24.1	46.9	29.2	20.2	15.3
Lone parent	38.7	26.1	22.0	20.3	61.3	45.3	35.4	28.2
Ages 65 and over								
Single	53.8	36.0	24.6	18.0	46.2	29.5	22.3	18.3
Attached, with children	53.8	33.3	—	—	46.2	30.8	—	—
Attached, with no children	67.1	42.7	45.2	14.3	32.9	18.9	10.4	8.9
Lone parent	48.6	30.0	25.0	—	51.4	36.0	27.0	—

Note: Dashes indicate cells with too few observations to report

Table 4c: ***Empirical Hazard and Survivor Rates Related to Re-entering Poverty, 1994–96 (No Change in Family Type)***

	Hazard Rates for Re-entering after			Survivor Rates after		
	One Year	Two Years	Three Years	One Year	Two Years	Three Years
	(% re-entering poverty)			*(% still nonpoor)*		
Males						
Ages 20–39						
Single	25.2	15.9	12.7	74.8	62.9	54.9
Attached, with children	25.3	15.5	11.7	74.7	63.1	55.7
Attached, with no children	13.9	9.2	7.0	86.1	78.2	72.8
Lone parent	35.0	23.5	25.0	65.0	49.7	37.3
Ages 40–64						
Single	32.7	21.5	18.6	67.3	52.8	43.0
Attached, with children	24.9	15.8	9.6	75.1	63.2	57.1
Attached, with no children	26.1	14.5	11.8	73.9	63.1	55.7
Lone parent	33.9	26.3	27.3	66.1	48.7	35.4
Ages 65 and over						
Single	17.7	10.2	7.0	82.3	74.0	68.8
Attached, with children	25.0	18.8	16.7	75.0	60.9	50.8
Attached, with no children	15.4	7.5	5.1	84.6	78.3	74.3
Lone parent	50.0	—	—	50.0	—	—
Females						
Ages 20–39						
Single	21.7	13.5	11.6	78.3	67.8	59.9
Attached, with children	23.9	15.5	11.2	76.1	64.3	57.1
Attached, with no children	11.9	7.9	5.0	88.1	81.2	77.1
Lone parent	38.4	31.9	24.3	61.6	42.0	31.8
Ages 40–64						
Single	32.6	21.1	15.5	67.4	53.2	45.0
Attached, with children	24.9	15.4	10.7	75.1	63.6	56.7
Attached, with no children	20.8	12.3	9.2	79.2	69.4	63.0
Lone parent	32.6	22.8	21.0	67.4	52.1	41.1
Ages 65 and over						
Single	19.2	10.5	6.4	80.8	72.4	67.8
Attached, with children	22.2	25.0	—	77.8	58.3	—
Attached, with no children	12.2	6.2	3.3	87.8	82.3	79.6
Lone parent	45.5	33.3	—	54.5	36.4	—

Note: Dashes indicate cells with too few observations to report

Table 4d: ***Empirical Hazard and Survivor Rates Related to Re-entering Poverty (Allowing for Change in Family Type), 1994–96***

	Hazard Rates for Re-entering after			Survivor Rates after		
	One Year	Two Years	Three Years	One Year	Two Years	Three Years
	(% re-entering poverty)			*(% still nonpoor)*		
Males						
Ages 20–39						
Single	23.9	14.5	10.7	76.1	65.1	58.1
Attached, with children	25.6	16.3	12.5	74.4	62.3	54.5
Attached, with no children	18.5	14.0	10.4	81.5	70.1	62.8
Lone parent	32.6	22.4	20.0	67.4	52.2	41.8
Ages 40–64						
Single	32.0	21.0	18.1	68.0	53.7	44.0
Attached, with children	25.1	16.0	10.6	74.9	62.9	56.3
Attached, with no children	26.4	15.8	12.7	73.6	62.0	54.1
Lone parent	32.6	24.2	19.0	67.4	51.1	41.4
Ages 65 and over						
Single	17.7	10.2	7.2	82.3	73.9	68.6
Attached, with children	22.6	17.2	8.3	77.4	64.1	58.7
Attached, with no children	14.8	7.8	5.6	85.2	78.6	74.2
Lone parent	42.9	—	—	57.1	—	—
Females						
Ages 20–39						
Single	20.9	12.6	10.2	79.1	69.1	62.1
Attached, with children	26.1	18.3	14.4	73.9	60.4	51.7
Attached, with no children	16.1	11.9	8.2	83.9	74.0	67.9
Lone parent	36.0	27.7	21.0	64.0	46.2	36.5
Ages 40–64						
Single	32.0	20.7	15.2	68.0	53.9	45.7
Attached, with children	25.5	15.9	12.0	74.5	62.6	55.1
Attached, with no children	21.5	14.5	11.1	78.5	67.2	59.7
Lone parent	31.4	20.2	17.0	68.6	54.7	45.4
Ages 65 and over						
Single	19.1	10.6	6.6	80.9	72.3	67.5
Attached, with children	18.2	16.7	33.3	81.8	68.2	45.5
Attached, with no children	13.2	8.9	4.5	86.8	79.1	75.5
Lone parent	39.1	22.2	—	60.9	47.3	—

Note: Dashes indicate cells with too few observations to report

Table 5a: ***Total Number of Years Spent in Low Income, 1992–96 (Individuals Who Did Not Change Family Type)***

	Never Poor	One Year	Two Years	Three Years	Four Years	Five Years	Ever Poor
				(%)			
Total	76.8	6.7	4.0	3.2	2.9	6.4	23.2
Males	78.7	6.3	3.8	3.3	2.7	5.2	21.3
Single	60.2	7.9	5.5	4.8	5.1	16.4	39.8
Attached, with children	80.2	6.5	3.8	2.8	2.7	4.1	19.8
Attached, with no children	83.7	5.5	3.2	3.3	2.0	2.2	16.3
Lone parent	48.4	10.3	7.9	6.3	7.0	20.1	51.6
Filing child	87.2	5.3	2.7	1.7	1.4	1.7	12.8
Females	75.0	7.1	4.2	3.1	3.0	7.0	25.0
Single	66.3	7.8	4.8	3.8	4.0	13.3	33.7
Attached, with children	76.2	8.1	4.7	3.4	3.0	4.6	23.8
Attached, with no children	89.4	4.7	2.2	1.4	1.0	1.3	10.6
Lone parent	31.1	8.6	7.8	7.3	9.4	36.0	68.9
Filing child	88.3	4.6	2.5	1.6	1.4	1.5	11.7

Table 5b: ***Total Number of Years Spent in Low Income, 1992–96 (by Family Type in First Year)***

	Never Poor	One Year	Two Years	Three Years	Four Years	Five Years	Ever Poor
				(%)			
Total	73.6	8.1	5.0	3.9	3.6	5.9	26.4
Males	76.4	7.6	4.5	3.7	3.1	4.7	23.6
Single	61.2	10.0	6.6	5.3	5.5	11.5	38.8
Attached, with children	79.7	6.9	4.0	2.9	2.7	3.8	20.3
Attached, with no children	81.9	6.2	3.7	3.5	2.2	2.3	18.1
Lone parent	59.1	11.4	7.4	5.8	5.8	10.6	40.9
Filing child	74.5	11.0	5.7	3.9	2.9	2.0	25.5
Females	70.8	8.6	5.4	4.2	4.0	7.0	29.2
Single	64.0	9.3	5.8	4.6	4.9	11.5	36.0
Attached, with children	72.7	9.0	5.6	4.2	3.7	4.8	27.3
Attached, with no children	85.1	6.3	3.2	2.2	1.6	1.6	14.9
Lone parent	33.3	11.7	9.9	9.5	11.5	24.2	66.7
Filing child	74.4	11.0	5.8	4.0	3.0	1.8	25.6

Table 5c: ***The Distribution of the Poor, 1992–96 (by Number of Years Poor)***

	1992	1993	1994	1995	1996	All Poor Person-Years, 1992–96[a]
			(% of ever-poor population)			
All						
One year	15.7	9.0	8.2	8.3	13.9	11.1
Two years	13.9	14.7	10.8	14.2	13.8	13.5
Three years	14.8	16.2	19.6	15.6	14.6	16.1
Four years	16.6	20.6	21.0	21.2	17.8	19.4
Five years	38.9	39.5	40.5	40.6	39.9	39.9
	100.0	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*
Males						
One year	16.8	9.6	8.8	9.2	15.1	12.0
Two years	14.8	15.9	11.6	14.8	14.3	14.3
Three years	16.6	18.2	21.8	16.2	14.9	17.6
Four years	16.6	20.5	21.1	21.6	18.1	19.5
Five years	35.2	35.7	36.8	38.2	37.6	36.6
	100.0	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*
Females						
One year	14.9	8.5	7.7	7.6	13.1	10.4
Two years	13.2	13.8	10.2	13.8	13.4	12.9
Three years	13.3	14.7	17.9	15.3	14.3	15.1
Four years	16.7	20.6	20.9	21.0	17.6	19.3
Five years	41.8	42.4	43.3	42.3	41.6	*42.3*
	100.0	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*

[a] The share of all person-years of poverty over the 1992–96 period.

Table 5d: ***The Distribution of Poverty Experiences, 1992–96 (Individuals Who Did Not Change Family Type)***

	Never Poor	Sometimes Poor	Always Poor	All
	(% of relevant poor population)			
Males				
Single	5.8	10.3	18.8	7.4
Attached, with children	20.4	18.4	12.3	19.6
Attached, with no children	21.4	16.5	6.9	19.7
Lone parent	0.2	0.5	0.9	0.3
Filing child	2.1	1.2	0.5	1.9
Females				
Single	11.4	16.1	27.4	13.2
Attached, with children	19.9	23.0	14.4	20.1
Attached, with no children	16.4	7.8	2.7	14.1
Lone parent	1.1	5.6	15.9	2.8
Filing child	1.1	0.6	0.2	1.0
	100.0	*100.0*	*100.0*	*100.0*

Table 5e: ***The Distribution of Poverty Experiences, 1992–96 (by Family Type in First Year)***

	Never Poor	Sometimes Poor	Always Poor	All
	(% of relevant poor population)			
Males				
Single	7.6	12.1	17.9	9.1
Attached, with children	19.7	14.6	11.7	18.2
Attached, with no children	19.8	13.6	7.1	17.8
Lone parent	0.6	1.0	1.3	0.7
Filing child	3.5	3.9	1.2	3.4
Females				
Single	10.6	14.6	23.9	12.2
Attached, with children	18.3	20.2	15.2	18.6
Attached, with no children	16.0	8.9	3.8	13.8
Lone parent	1.9	8.7	17.4	4.2
Filing child	2.0	2.3	0.6	2.0
	100.0	*100.0*	*100.0*	*100.0*

Table 6a: ***Income Changes in Year of Entering Low Income, 1992–96***

Percentage of Low-Income Threshold When Not Poor (Before Entry)	Percentage of Low-Income Threshold When Poor (After Entry)				
	75–100	50–75	25–50	0–25	Total
	(% of individuals who entered poverty)				
100–125%					
Percentage	29.3	9.6	2.9	2.3	44.1
Row percentage	66.4	21.8	6.6	5.2	
Column percentage	51.3	41.2	32.9	21.5	
125–150%					
Percentage	11.8	4.9	1.9	1.7	20.3
Row percentage	58.3	24.3	9.2	8.3	
Column percentage	20.7	21.2	21.2	15.8	
150–200%					
Percentage	9.3	4.7	2.0	2.5	18.5
Row percentage	50.3	25.4	10.7	13.5	
Column percentage	16.2	20.1	22.5	23.2	
> 200%					
Percentage	6.7	4.1	2.1	4.3	17.1
Row percentage	39.3	12.0	23.9	24.9	
Column percentage	11.8	17.5	23.3	39.6	
Total percentage	57.1	23.3	8.9	10.8	*100.0*

Note: See text for discussion of these amounts, especially the "total" column.

Table 6b: ***Income Changes in Year of Exiting Low Income, 1992–96***

Percentage of Low-Income Threshold When Not Poor (Before Leaving)	Percentage of Low-Income Threshold When Poor (After Leaving)				
	100–125	125–150	150–200	> 200	Total
	(% of individuals who exited poverty)				
75–100%					
Percentage	32.0	12.5	9.0	6.0	59.5
Row percentage	53.8	21.0	15.1	10.1	
Column percentage	67.0	59.9	52.6	42.2	
50–75%					
Percentage	10.5	5.1	4.4	3.5	23.5
Row percentage	44.5	21.6	18.9	15.0	
Column percentage	21.9	24.3	25.9	24.7	
25–50%					
Percentage	3.1	1.8	1.8	1.7	8.3
Row percentage	37.3	21.4	21.2	20.0	
Column percentage	6.5	8.6	10.4	11.7	
0–25%					
Percentage	2.2	1.5	1.9	3.0	8.6
Row percentage	25.0	17.3	22.1	35.8	
Column percentage	4.5	7.2	11.1	21.4	
Total percentage	47.8	20.8	17.1	14.3	*100.0*

Note: See text for discussion of these amounts, especially the "total" column.

Table 7a: ***Probability Effects for the Annual Entry Models***

	Men				Women			
	Single	Attached, with Children	Attached, with No Children	Lone Parent	Single	Attached, with Children	Attached, with No Children	Lone Parent
				(percent)				
Baseline probability	6.37**	2.41**	1.85**	7.84**	5.80**	2.88**	1.69**	8.23**
Family dynamics: change								
To single	N/A	4.71**	4.51**	-3.93**	N/A	13.86**	11.12**	-3.01**
To attached, with children	0.09	N/A	2.31**	-1.93**	1.92**	N/A	2.75**	-5.03**
To attached, no children	-2.41**	-0.69**	N/A	-3.48**	-1.80**	-1.03**	N/A	-5.70**
To lone parent	8.96**	6.94**	9.66**	N/A	24.61**	31.89**	42.42**	N/A
To filing child	-4.58**	-0.60	0.69	-4.99	-4.14**	~~	2.28**	-4.33
To new spouse	N/A	7.05**	4.10**	N/A	N/A	16.41**	8.61**	N/A
Number of children (one)								
Two	N/A	-0.12**	N/A	0.41	N/A	0.05	N/A	0.52**
Three	N/A	0.61**	N/A	0.82	N/A	0.77**	N/A	2.93**
Four	N/A	1.58**	N/A	0.42	N/A	1.94**	N/A	6.32**
Five or more	N/A	3.20**	N/A	3.51	N/A	3.66**	N/A	9.26**
Age group (prime, 40–49)								
20–29	0.64**	2.51**	-0.07	6.91**	0.14	3.26**	-0.13**	13.74**
30–39	-0.13	0.62**	-0.12*	2.20**	-1.19**	0.97**	-0.20**	3.79**
50–59	1.36**	0.57**	0.53**	-0.06	1.44**	0.68**	0.37**	2.11**
60–69	-1.12**	2.58**	0.73**	7.66**	-0.97**	2.34**	-0.52**	10.39**
70+	-3.29**	1.70**	-0.10*	-1.55	-2.07**	-0.16	-1.07**	8.23**
Province (Ontario)								
Newfoundland	4.19**	2.04**	2.00**	1.65	3.20**	~~	1.80**	-1.15*
Prince Edward Island	0.82	-0.35*	0.52**	-1.13	0.38	-0.48**	0.03	-2.82**
Nova Scotia	1.27**	0.32**	0.76**	1.90	0.96**	0.02	0.66**	-1.85**
New Brunswick	0.79**	-0.05	0.34**	-0.73	1.03**	-0.22**	0.38**	-3.21**
Quebec	0.13	-0.07	0.71**	-2.65**	1.46**	-0.46**	0.48**	-3.56**
Manitoba	0.36	-0.01	0.06	-2.24*	-0.09	-0.27**	0.13	-3.08**
Saskatchewan	0.48	0.50**	0.72**	-0.86	1.24**	0.08	0.61**	-3.66**
Alberta	-0.15	0.19**	0.42**	-1.29*	1.18**	0.09	0.43**	-2.39**
British Columbia	-0.23	0.34**	0.50**	-0.06	0.74**	0.35**	0.73**	-1.87**
Mover	5.01**	2.30**	1.49**	9.48**	6.75**	3.22**	1.41**	13.10**
Minority language								
English in Quebec	0.73**	1.00**	-0.03	5.82**	-0.10	1.42**	0.05	1.59**
French in rest of Canada	-1.24**	-0.47**	0.32**	0.41	-0.21	-0.39**	0.18	-0.49
Area size (500,000+)								
100,000–499,999	-0.59**	-0.55**	-0.34**	-0.99	-0.18	-0.44**	-0.30**	0.39
30,000–99,999	0.16	-0.12**	0.09*	-0.06	0.61**	-0.21**	0.04	1.11**
15,000–29,999	-0.44	-0.33**	0.14	-2.04*	0.59*	-0.21*	-0.06	1.66**
0–14,999	0.72**	0.30**	0.80**	-0.90	1.76**	0.38**	0.52**	2.08**
Rural area	2.73**	1.92**	1.78**	3.06**	3.94**	1.85**	1.51**	4.62**
Year of observation (1992)								
1993	-0.45**	-0.14**	-0.10**	1.84**	-0.92**	-0.01	-0.04	0.42
1994	-0.08	0.17**	-0.36**	3.22**	-1.18**	0.34**	-0.06	4.29**
1995	-0.18	-0.01	-0.27**	3.10**	-1.02**	0.21**	-0.03	2.96**

* Significant at the 0.05 level.

** Significant at the 0.01 level.

~~ The coefficient had to be suppressed to alleviate convergence problems.

Table 7b: ***Probability Effects for the Annual Exit Models***

	Men				Women			
	Single	Attached, with Children	Attached, with No Children	Lone Parent	Single	Attached, with Children	Attached, with No Children	Lone Parent
				(percent)				
Baseline probability	18.92**	36.53**	27.67**	28.41**	20.07**	39.77**	40.50**	29.30**
Family dynamics: change								
To single	N/A	11.16**	16.09**	23.83**	N/A	4.79	4.06**	27.10**
To attached, with children	26.69**	N/A	-5.18**	32.56**	46.76**	N/A	-5.69**	54.79**
To attached, no children	40.83**	13.40**	N/A	35.99**	57.99**	9.92**	N/A	57.67**
To lone parent	1.24	-2.20	4.96	N/A	-8.04**	-19.40**	-26.94**	N/A
To filing child	63.11**	49.89**	49.81**	64.81**	65.65**	~~	38.78**	63.64**
To new spouse	N/A	6.73*	43.34**	N/A	N/A	13.73**	34.30**	N/A
Number of children (one)								
Two	N/A	1.35**	N/A	2.33	N/A	1.07**	N/A	-0.49
Three	N/A	-0.25	N/A	2.91	N/A	-2.21**	N/A	-3.93**
Four	N/A	-3.02**	N/A	1.43	N/A	-6.20**	N/A	-7.50**
Five or more	N/A	-8.89**	N/A	-12.12*	N/A	-10.90**	N/A	-9.98**
Age group (prime, 40–49)								
20–29	8.48**	-1.75**	7.71**	-6.53**	7.28**	-6.74**	6.18**	-8.82**
30–39	3.66**	-0.65	2.86**	-3.37**	2.50**	-3.29**	1.51	-3.75**
50–59	-3.39**	-2.47**	-0.23	-5.49**	-1.97**	-3.18**	-2.18**	-3.96**
60–69	8.28**	-2.48*	4.08**	0.06	11.86**	0.64	5.29**	-2.23
70+	9.88**	-1.58	4.52**	5.81	10.47**	3.83	1.09	7.09*
Province (Ontario)								
Newfoundland	-10.12**	-15.28**	-10.74**	-9.56**	-13.62**	-13.15**	-17.49**	-18.22**
Prince Edward Island	-3.41*	3.48	0.11	14.25	-11.06**	2.14	-5.87	-8.06**
Nova Scotia	-7.09**	-8.80**	-7.44**	-8.58**	-11.14**	-8.81**	-9.64**	-16.24**
New Brunswick	-7.32**	-10.17**	-6.77**	-7.67**	-11.40**	-9.97**	-9.19**	-15.52**
Quebec	-6.95**	-5.51**	-6.38**	-7.17**	-11.20**	-6.45**	-7.62**	-15.03**
Manitoba	-7.33**	-9.72**	-4.32**	-16.30**	-7.82**	-8.31**	-0.97	-14.97**
Saskatchewan	-3,67**	-6.19**	-2.95**	-9.36**	-1.58**	-5.99**	-3.62**	-14.91**
Alberta	1.62**	-1.86**	0.53	-1.86	2.35**	-1.94**	0.04	-9.80**
British Columbia	-2.36**	-0.11	-1.60**	-5.68**	-6.87**	-0.84	-3.37**	-5.75**
Mover	4.34**	0.72	-1.08	1.26	-0.12	-2.81*	0.00	-7.88**
Minority language								
English in Quebec	1.72*	-6.78**	-0.59	-5.33	3.10**	-7.04**	-1.45	-2.60*
French in rest of Canada	-3.33**	2.43	2.20	-4.71	-2.97**	0.92	-4.54	-2.76
Area size (500,000+)								
100,000–499,999	0.16	1.86**	2.52**	0.51**	1.84**	2.83**	5.24**	1.30*
30,000–99,999	1.33**	0.33	0.54	-1.54	1.00**	2.37**	5.03**	0.34
15,000–29,999	1.33	-0.52	1.00	-4.82	0.99	-1.17	3.25	0.79
0–14,999	1.94**	0.28	0.33	-1.75	0.90**	0.30	1.81*	-0.46
Rural area	0.47	-4.89**	-2.54**	-3.37**	1.59**	-6.19**	0.31	-7.23**
Year of observation (1992)								
1993	1.30**	1.54**	1.85**	-0.71	2.43**	1.41**	-0.56	-0.50
1994	0.14	-3.00**	19.75**	-6.07**	1.29**	-1.80**	1.07	-5.32**
1995	-1.37**	-2.12**	7.85**	-7.59**	-1.34**	-2.78**	-2.47**	-6.34**

* Significant at the 0.05 level.

** Significant at the 0.01 level.

~~ The coefficient had to be suppressed to alleviate convergence problems.

Table 8a: ***Probability Effects for the Hazard Exit Models, Selected Results***

	Men				Women			
	Single	Attached, with Children	Attached, with No Children	Lone Parent	Single	Attached, with Children	Attached, with No Children	Lone Parent
				(percent)				
Baseline probability	34.22**	48.78	43.79**	38.22**	34.33**	53.20**	54.85**	41.96**
Duration (one year)								
Two years	–11.20**	–13.89**	–12.43**	–11.50**	–11.73**	–13.84**	–14.94**	–12.10**
Three years	–15.79**	–19.93**	–14.99**	–18.11**	–17.05**	–21.07**	–21.12**	–17.74**
Four years	–16.70**	–21.10**	–19.50**	–18.40**	–19.42**	–21.05**	–26.57**	–17.76**
Year of observation (1992)								
1993	2.71**	2.00**	0.49	4.68	2.21**	–0.28	1.32	–2.80**
1994	1.50	–2.54**	11.43**	–3.88**	3.20**	–2.74**	1.61	–6.75**
1995	–1.81**	–2.35**	3.53**	–6.59**	–1.41	–4.49**	–2.81*	–10.46**

* Significant at the 0.05 level.

** Significant at the 0.01 level.

Table 8b: ***Probability Effects for the Hazard Re-entry Models, Selected Results***

	Men				Women			
	Single	Attached, with Children	Attached, with No Children	Lone Parent	Single	Attached, with Children	Attached, with No Children	Lone Parent
				(percent)				
Baseline probability	26.61**	20.28**	21.89**	36.17**	24.79**	18.56**	16.33**	27.83**
Duration (one year)								
Two years	–10.11**	–7.88**	–8.36**	–7.47**	–10.33**	–7.45**	–6.57**	–8.92**
Three years	–13.24**	–11.46**	–11.86**	–12.30**	–14.58**	–10.16**	–9.28**	–11.45**
Year of observation (1992)								
1994	3.26**	2.43**	–3.93**	0.20	1.78*	2.91**	1.62*	12.17**
1995	3.33**	1.55**	–3.02**	1.39	3.78**	2.04**	2.58**	8.99**

* Significant at the 0.05 level.

** Significant at the 0.01 level.

Table 9a: ***Probability Effects for 1995–96 Entry, Selected Results***

	Men				Women			
	Single	Attached, with Children	Attached, with No Children	Lone Parent	Single	Attached, with Children	Attached, with No Children	Lone Parent
				(percent)				
Baseline probability	4.11**	1.76**	1.36**	8.00**	3.55**	2.34**	1.36**	9.12**
Years in low income (1992–94)								
One year	12.88**	8.71**	7.57**	18.84**	12.37**	7.84**	7.05**	15.05**
Two years	20.23**	15.76**	12.42**	28.70**	22.42**	13.49**	12.62**	25.42**
Three years	31.88**	25.58**	18.23**	39.48**	34.99**	21.28**	19.19**	37.71**

* Significant at the 0.05 level.

** Significant at the 0.01 level.

Table 9b: ***Probability Effects for Being Poor, 1996, Selected Results***

	Men				Women			
	Single	Attached, with Children	Attached, with No Children	Lone Parent	Single	Attached, with Children	Attached, with No Children	Lone Parent
				(percent)				
Baseline probability	5.30**	1.82**	1.51**	7.97**	3.81**	2.95**	1.45**	10.65**
Years in low income (1992–95)								
One year	29.58**	18.16**	16.16**	34.81**	24.81**	20.28**	15.80**	27.64**
Two years	47.09**	33.97**	29.84**	53.64**	45.20**	34.87**	28.43**	45.61**
Three years	63.46**	52.73**	39.97**	66.66**	64.71**	51.48**	42.01**	62.60**
Four years	86.85**	77.59**	74.19**	84.43**	88.82**	76.54**	67.77**	80.29**

* Significant at the 0.05 level.

** Significant at the 0.01 level.

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